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Lesser Spotted Woodpeckers

Dartford Warblers

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Conservation priority species

The ecology and conservation of the Lesser Spotted Woodpecker

Ken W. Smith and Elisabeth C. Charman



Dan Cole

A pair of Lesser Spotted Woodpeckers *Dendrocopos minor* displaying in early spring

Abstract The Lesser Spotted Woodpecker *Dendrocopos minor* is in serious decline in Britain and in many other countries in northwest Europe. In this paper we review the recent research on the species in Britain and elsewhere in Europe, and discuss the conservation implications of this work. The breeding success of Lesser Spotted Woodpeckers in Britain is currently lower than reported previously and is also lower than that found in recent studies in Germany and Sweden. The proximate cause of this low breeding success appears to be chick starvation but more work is needed on the ecology of the species in the pre-breeding and breeding periods to identify the ultimate cause.

Introduction

The Lesser Spotted Woodpecker *Dendrocopos minor* breeds across the Palearctic region from northwest Europe in the west to Kamchatka in the east. Eleven subspecies have been recognised, based on plumage and size differences, but those of most relevance to Britain are *D. minor comminutus* (confined to Britain), the nominate *D. minor minor* (from Scandinavia eastwards) and *D. m. hortorum* (on the near continent; del Hoyo *et al.* 2002). All populations of Lesser Spotted Woodpecker are largely sedentary, although irruptive movements have been reported in Scandinavia in some years (Wiktander 1998; Gohli *et al.* 2011).

In Britain, the Lesser Spotted Woodpecker is restricted to England and Wales with the most northerly breeding birds reaching north Lancashire in the west and Northumberland in the east (Gibbons *et al.* 1993). The British population has undergone significant changes during the last 50 years and for the majority of birdwatchers in Britain it is now a rare sight, although this was not always the case. In the late 1960s it was one of the species that benefited most from the spread of Dutch elm disease (Osborne 1982) with at least one report of local population increases linked to dying elms *Ulmus* (Flegg & Bennett 1974). The fungus that resulted in the death of the elms was spread from tree to tree by bark beetles (Scolotyidae), which provided a superabundant food resource for the woodpeckers, which in turn were also able to excavate nesting cavities in the dead trees. Within a decade, mature elms had disappeared from the landscape in much of southern Britain, although young trees continue to regenerate from suckers in many areas. In most of its British range, the Lesser Spotted Woodpecker is now a very scarce bird with only a few localities where it can be found with any reliability. Preliminary results from Bird Atlas 2007–11 made available to us when finalising this paper show around 30% fewer occupied 10-km squares than in the 1988–91 Atlas (Gibbons *et al.* 1993). The declines have occurred across the whole British range, though more especially to the north, the west and, particularly, in East Anglia, with the net result of a distinct heartland now in southeast England and the Home Counties.

The British Lesser Spotted Woodpecker

population peaked in 1979 and then declined until 2000, when numbers became too low for the species to be monitored by the national BTO/JNCC/RSPB Breeding Bird Survey (Baillie *et al.* 2010). This pattern was confirmed by large-scale resurveys in 2003–04 of 406 woodlands first surveyed by the BTO and RSPB in the 1980s and earlier (the Repeat Woodland Bird Survey; see Amar *et al.* 2006, Hewson *et al.* 2007). Between the 1980s and 2003–04, Lesser Spotted Woodpeckers had declined by 44% (on BTO-surveyed sites) and 59% (on RSPB-surveyed sites). Those sites surveyed by the BTO in the 1960s, 1970s, 1980s and 2003–04 also showed the pattern of increases to the 1970s and 1980s followed by a sharp decline since.

The Lesser Spotted Woodpecker is such an unobtrusive species that population estimates have always been little more than educated guesses based on atlas distributions (Sharrock 1976; Gibbons *et al.* 1993) and likely breeding densities. The most recent estimate for Britain was 1,400–2,900 pairs (Baker *et al.* 2006) but this should be treated with considerable caution. In 2011 the species was added to the list of species monitored by the UK Rare Breeding Birds Panel (Holling *et al.* 2011), a consequence of the fact that numbers are now so low that this is the only way to provide effective monitoring. It is also on the Red list of Birds of Conservation Concern 3 because of its severe decline in recent decades (Eaton *et al.* 2009).

The status of Lesser Spotted Woodpecker elsewhere in Europe is less clear. It is listed by BirdLife International as a non-SPEC species with favourable status (BirdLife International 2004) whereas declines have been reported from Sweden, Finland and locally in Germany (Olsson 1988; Nilsson *et al.* 1992; Höntsch 2004). In a compilation of population trends for European countries between 1970 and 1990, Mikusiński & Angelstam (1997) showed that the Lesser Spotted Woodpecker had declined in 41% and increased in only 6% of the 32 countries considered. The Pan European Common Bird Monitoring Scheme reports declines of 75% between 1980 and 2009 and of 58% between 1990 and 2009 (PECBMS 2011) but, because of difficulties in producing the combined index for Lesser Spotted Woodpecker, classifies these trends as uncertain.

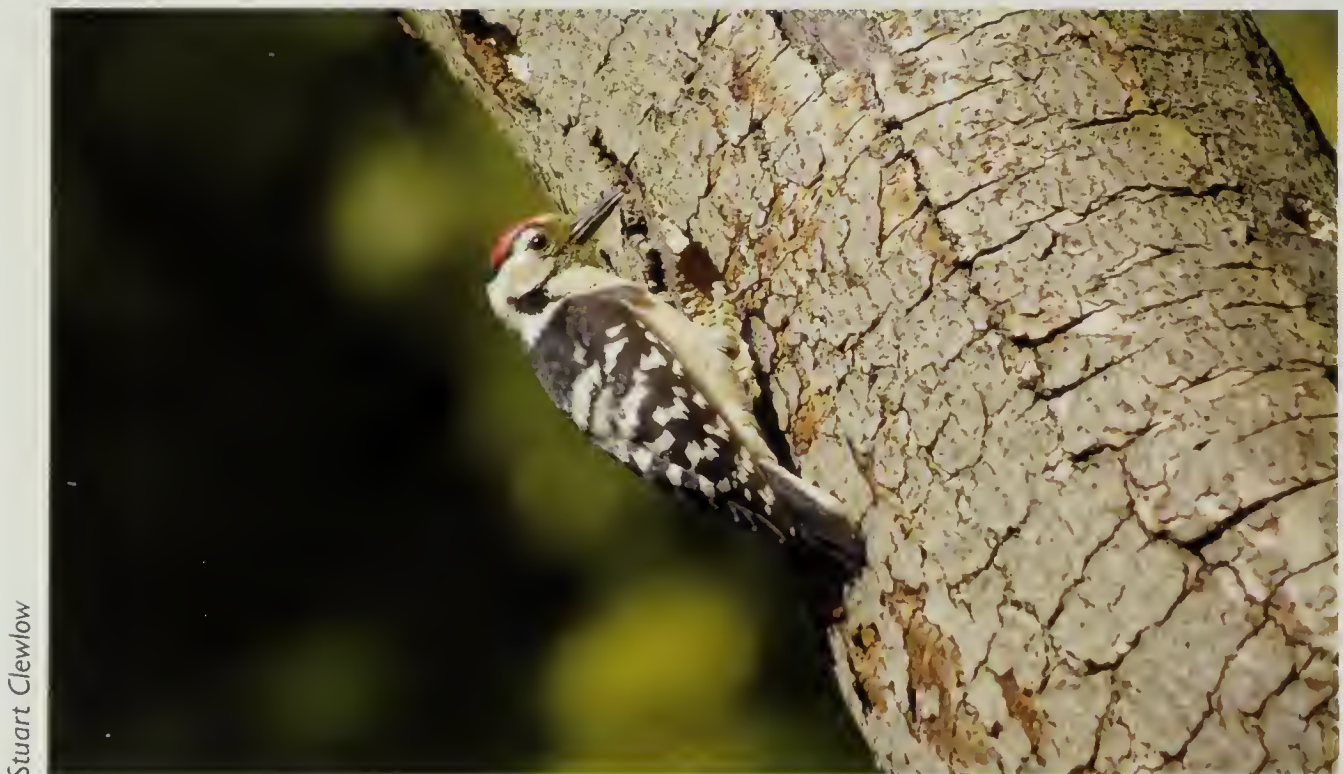
Large-scale habitat usage

The Lesser Spotted Woodpecker is categorised as a 'specialised forest insectivore' (Roberge *et al.* 2008) and, together with the Middle Spotted Woodpecker *D. leucotos*, is considered an indicator of mature broadleaved forests in Europe (Török 1990; Mikusiński & Angelstam 1997; Mikusiński *et al.* 2001). A large-scale survey in Sweden found that Lesser Spotted Woodpeckers were most likely to be found in census plots with large areas of nemoral deciduous woodland (in Sweden, nemoral woods are defined as woods dominated mostly by oaks *Quercus robur/petraea* but also including Beech *Fagus sylvatica*, Ash *Fraxinus excelsior*, Small-leaved Lime *Tilia cordata*, Wych Elm *Ulmus glabra*, Norway Maple *Acer platanoides* and Hornbeam *Carpinus betulus*) and riparian deciduous woodland fringing lakes and rivers (Wiktander *et al.* 1992). In floodplain forests of the Rhine and Danube, Spitznagel (1990) and Riemer (2009) found that they were associated with old-growth deciduous forests, particularly in the wetter areas where willows *Salix*, alders *Alnus* and birch *Betula* were present. Similarly, in deciduous forests of northeastern Switzerland, woods with decayed trees of alder, Ash, lime *Tilia* and poplar *Populus* near to lakes and rivers were selected (Miranda & Pasinelli 2001). Tobalske

& Tobalske (1999) used atlas data to model the distribution of woodpeckers in the Jura region of eastern France and found that Lesser Spotted Woodpeckers were associated with mature deciduous woodland and coppice at low altitudes. In Belgium, Lesser Spotted Woodpeckers selected stands with a high percentage of oak cover and a high density of dead wood (Delahaye *et al.* 2010). In the mixed landscape of the low Taunus Mountains of Germany, Höntsch (2004) found that in the pre-breeding and breeding seasons, although all wooded areas were used, there was strong selection for the use of orchards.

It appears that the wet woodlands are selected for their high density of dead trees rather than wetness per se (Reimer 2009). In the case of orchards, it is the mature dead and dying trees that appear to be important (for nest-sites), with little evidence of the birds foraging in the orchards themselves (Höntsch 2004; ECC pers. obs.).

In an analysis of BTO nest record cards submitted up to 1989, Glue & Boswell (1994) found that, of the 122 cards, approximately 50% were for nests in woodland (mainly deciduous), 20% from farmland and 14% from parks and gardens. Charman *et al.* (2010) found that in both the 1980s and 2007, Lesser Spotted Woodpeckers in England were found in open, mature-oak-



Stuart Clewlow

165 & 166. Male and female Lesser Spotted Woodpecker *Dendrocopos minor* at nest-site in Hertfordshire, May 2011.

dominated woodlands. Associations with high numbers of dead limbs on trees and wet features found in the 1980s were no longer significant in 2007. In 2007 the strongest variable was the area of broadleaved woodland within 3 km, implying that in England Lesser Spotted Woodpeckers are now most likely to be found in highly wooded landscapes. Using the dataset from the Repeat Woodland Bird Survey (Amar *et al.* 2006; Hewson *et al.* 2007), Smart *et al.* (2007) found that Lesser Spotted Woodpeckers were more likely to be present in oak-dominated woodlands with intermediate canopy cover and high numbers of dead trees.

Fine-scale habitat use and foraging

There have been a number of studies looking at habitat selection at the scale of the individual foraging bird. For most of the year, Lesser Spotted Woodpeckers forage on invertebrates found in dead wood (Glutz & Bauer 1994; Cramp *et al.* 1985), which they obtain by pecking and excavating on dead branches or ripping off fragments of dead bark (scaling). During the short breeding season, like many other woodland birds, they take advantage of the spring abundance of invertebrates and switch to gleaning lepidoptera larvae and other invertebrates from the foliage and surfaces of the branches (Török

1990; Olsson 1998; Wiktander 1998; Rossmanith *et al.* 2007a).

Hogstad (1978, 2010) found that in the Norway Spruce *Picea abies* forests of Norway, Lesser Spotted Woodpeckers foraged almost exclusively on broadleaved trees (birch, Grey Alder *Alnus incana*, Aspen *Populus tremula*, Goat Willow *Salix caprea* and Rowan *Sorbus aucuparia*), which were scattered through the forest. In winter they foraged by scaling, pecking and probing on dead birch and alder branches less than 10 cm in diameter, on dead and living trees. In the pre-breeding and breeding seasons all the broadleaved species were used, with more foraging on live branches and more gleaning of prey.

Some of the most comprehensive and valuable studies of Lesser Spotted Woodpeckers have been carried out by Ola Olsson and Ulf Wiktander in the mixed forests of southern Sweden (for summaries see Olsson 1998 and Wiktander 1998). As in Norway, territories were associated with patches of broadleaved trees within conifer-dominated forests (Olsson *et al.* 1992) and the birds foraged on small-diameter (<5 cm) dead branches where they preyed mainly upon the larvae of small longhorn beetles (Cerambycidae). The foraging tree species preference varied greatly from year to year and was determined by the relative prey availability in



Stuart Clewlow

Table 1. Nest tree species used by Lesser Spotted Woodpeckers *Dendrocopos minor*.

	Worcestershire	Britain	Hertfordshire	Worcestershire, New Forest, Sheffield	Poland	Poland	Norway	Norway	Sweden	Germany
	Winnall 2001	Glue & Boswell 1994	Smith 2007/ unpubl.	Charman <i>et al.</i> 2012a	Wesołowski & Tomiałojć 1986	Kosinski & Kempa 2007	Hågvar <i>et al.</i> 1990	Stenberg 1996	Wiklander 1998	Höntschi 2004
birch <i>Betula</i>	6	22	2	4			17		95*	
alder <i>Alnus</i>		17		4	9	1	13	2		
willow <i>Salix</i>		14		1						Y
Aspen <i>Populus tremula</i>				1			20	9		Y
Poplar <i>Populus</i>			1	1						
Rowan <i>Sorbus aucuparia</i>			1							
fruit trees		17		5						Y
elm <i>Ulmus</i>		14	3	1						
oak <i>Quercus</i>		7	6	7		1				
Ash <i>Fraxinus excelsior</i>		9	2		4					
Beech <i>Fagus sylvatica</i>		6	3	2						
Hornbeam <i>Carpinus betulus</i>			1		6	2				
Small-leaved Lime <i>Tilia cordata</i>				1						
Sweet Chestnut <i>Castanea sativa</i>		4								
other		21	1							
TOTAL	6	131	20	27	19	4	50	11	116	33

* Wiklander (1998) reported 95 out of 116 nests in birch and alder with six other unspecified species used for the remaining nests. Nests reported in the Höntschi 2004 study were in willow, Aspen and fruit trees but the numbers of each were not specified.

* Wiklander (1998) reported 95 out of 116 nests in birch and alder with six other unspecified species used for the remaining nests. Nests reported in the Höntschi 2004 study were in willow, Aspen and fruit trees but the numbers of each were not specified.

the four species groups considered – birch, alder, oak and lime (Olsson *et al.* 2001). In some years, when they flowered, birch and alder trees held high numbers of larvae of the micro moth *Argyresthia goedarthella*, which feed in the cambium of live stems and were heavily preyed upon by Lesser Spotted Woodpeckers. In other years the woodpeckers focused on dead-wood invertebrates.

By radio-tagging their birds, Wiklander *et al.* (2001b) were able to determine home ranges at different seasons. Remarkably for such a small bird, the mean home range in winter was 742 ha, falling to 355 ha in early spring, 103 ha in late spring and 43 ha when nesting. The defended territory of late spring included an average of c. 40 ha of preferred foraging habitat. Slightly lower figures were reported from Germany: 211 ha in winter, 192 ha in the pre-breeding period and 45 ha during nesting (Höntschi 2004). Given these enormous home-range areas, it is not surprising that most birdwatchers find it difficult to pin down Lesser Spotted Woodpeckers.

Results from mixed northern forests contrast with Lesser Spotted Woodpecker ecology in more temperate broadleaved woods. For instance, in oak woodlands in southern England, Smith (2007) reported that Lesser Spotted Woodpeckers showed no selection for foraging on dead trees or dead branches but did favour small-diameter branches high in the trees. Similarly, Charman *et al.* (2012b) found that in the pre-breeding period 80% of foraging observations were on oak trees, with the birds gleaning, pecking and scaling on mainly live branches.

Breeding density and nest-site selection

Large-scale surveys of breeding Lesser Spotted Woodpeckers in a variety of situations in Europe give ranges of densities of



Steve Dodd

167. Lesser Spotted Woodpecker nest tree (a live willow *Salix*; hole upper right of centre), Worcestershire; nest found at chick stage, one chick fledged successfully.

1.2–3.6 pairs per 100 ha, findings that are in very close agreement with the home-range results from Sweden and Germany (Wesolowski & Tomialojć 1986; Spitznagel 1990; Stenberg & Hogstad 1992; Winnall 2001; Kosiński & Kempa 2007; Riemer 2009). In exceptional circumstances, higher densities have been reported. For instance, a 52-ha wood in Kent, which normally held 1–3 pairs, was reported to hold 15 pairs while the trees were dying from Dutch elm disease (Flegg & Bennett 1974), although numbers have now fallen to zero.

It is perhaps not surprising, since it is the smallest woodpecker in the region, that the Lesser Spotted Woodpecker invariably excavates its nest cavity in soft substrates. Depending on the species of tree, this can be a standing dead stump or a dead branch on a living tree. A new cavity is normally excavated each year. The tree species used for nesting are summarised in table 1 and to some extent these reflect the site-specific species availability. In northern forests, dead Aspen, birch and alder are the main nesting trees whereas in more temperate areas dead limbs on species such as oak, Ash and Beech are also used. In Britain, elms were and continue to be used and there is also substantial use of fruit trees in orchards (cherry *Prunus*, apple *Malus* and pear *Pyrus*), which has also been reported from Germany.

Determining the breeding success of Lesser Spotted Woodpeckers. **BOX 1**

Lesser Spotted Woodpeckers often nest in inaccessible locations – in dead branches high in living trees and in standing dead trees. Climbing to such nests is usually out of the question and would in any case be likely to cause considerable disturbance. To enable us to see into the nesting cavity quickly and safely without having to climb the tree, we developed a video system comprising a miniature video camera, LED lamps and radio link (Wildlife Windows Ltd) all mounted on a long telescopic pole (Smith *et al.* 2006). This can be inserted into the entrance hole to look down into the cavity and is small enough to fit even into the diminutive nest of the Lesser Spotted Woodpecker. The images are recorded on a portable video recorder to be viewed later.

The photographs on this page show the nest camera, and the authors using the system in the field, inspecting a low and a high nest. On the opposite page are three videograbs showing two nest cavities in Worcestershire in 2008, at different stages of development.



168. The nest camera. The viewing head on the right goes into the nest hole. The black box contains the batteries and a small radio link to transmit the pictures to the portable video recorder. The telescopic carbon fibre poles allow high nests to be inspected.
Ken Smith



169. ECC checking a low cavity in dead Beech *Fagus sylvatica* tree.
Anne Heath



170. KWS checking a nest high in a live oak *Quercus* tree, April 2010. The nest is close to the top of the photo frame. *Linda Smith*

Determining the breeding success of Lesser Spotted Woodpeckers. *cont.*

BOX 1

Three videograbs of two Lesser Spotted Woodpecker nest cavities, in Worcestershire in 2008, showing eggs, recently hatched young and near-fledged youngsters.



171. Lesser Spotted Woodpecker nest cavity with four eggs.

Steve Dodd/RSPB



172. Four recently hatched young; note the eggshells still present in the nest.

Steve Dodd/RSPB



173. At a different nest-site, this image shows five young within a few days of fledging, most of them now with red crown feathers. Steve Dodd/RSPB

Breeding success, parental care

The low breeding density and difficulties of finding nests and subsequently viewing the contents means that there have been rather few studies of breeding success of Lesser Spotted Woodpeckers and most of these have involved small sample sizes. The breeding parameters found in the four key published studies and two other, unpublished studies are summarised in table 2. Two features in particular are noteworthy. Firstly, for such a small bird that is essentially single-brooded, the Lesser Spotted Woodpecker has a relatively low productivity – for instance 3.5 fledglings per nesting attempt in Sweden and in the UK up to 1989. Secondly, the productivity found in recent RSPB studies (Charman *et al.* 2012a) is less than half this figure at 1.4 fledglings per nesting attempt. Similar low figures have been found by Smith (unpubl.) for 13 nests in Hertfordshire between 1985 and 2011 (estimated 1.6 fledglings per nesting attempt).

The causes of breeding failures varied among studies. Nest predation by avian (Great Spotted Woodpecker *Dendrocopos major*, Eurasian Jay *Garrulus glandarius* and Magpie *Pica pica*) and, occasionally, mammalian predators which leads to complete nest failure was found to be important in two studies (Rossmanith *et al.* 2007a; Smith unpubl.). In Sweden, Wiktander *et al.* (2000) found that the disappearance of one of the adults during the nesting period invariably led to nest failure. Recent work by the RSPB (Charman *et al.* 2012a) found that most nest failures were associated with chick starvation, often linked to poor weather conditions or the cessation of feeding by one of the adults (usually the female) and the apparent inability of the remaining adult to provide sufficient food for the chicks. In this study a few failures were the result of predation of chicks by Great Spotted Woodpeckers, which may have also been linked to food shortage and chick starvation.

It is normal in the Lesser Spotted Woodpecker for males to incubate the eggs at night and to take a larger share in feeding the young, particularly in the later stages of chick rearing. In Sweden (Wiktander *et al.* 1994, 2000, 2001a) and Germany (Rossmanith *et al.* 2009), nests where only one of the adults

was feeding the young were still successful whereas in recent studies in Britain such nests had a very high probability of failure (Charman *et al.* 2012a). In Sweden, the males that were feeding the young on their own were able to increase their feeding rate to compensate for the loss of the contribution from the female whereas in Britain this did not seem to be the case and there was a high chance of the chicks starving. In Sweden, Wiktander *et al.* (2001a) also found that a significant proportion (9%) of pairs excavated a nest cavity but failed to lay any eggs, but there are no comparable data for other countries.

Olsson *et al.* (1999) found that birds in territories with good feeding conditions in the pre-breeding period were able to nest earlier than other pairs, which resulted in more fledged young per nesting attempt. Even though the birds fed their young mainly on defoliating caterpillars (Wiktander *et al.* 2001a; Rossmannith *et al.* 2007a), the earlier nesting meant they were better synchronised with the peak of caterpillar availability.

In Sweden, 78% of nesting attempts were

by monogamous pairs and there was very strong site and mate fidelity from one year to the next (Wiktander *et al.* 2000). However, 16% of nesting attempts were polyandrous (one female mated to more than one male) and 6% were polygynous (one male with more than one female). The rate of polyandry in Germany was 19% (Rossmannith *et al.* 2009). In Sweden (and presumably Germany) the proximate cause of polyandry was thought to be unequal sex ratios in the population because of differences in survival of males and females (see next section). However, in Spain two cases of polygyny were reported which appeared to be the result of disruption of an established population by extensive forestry operations, leading to a shortage of potential nest-sites (Romero & Pérez 2008; Romero *et al.* 2010).

Survival and population modelling

For such a small bird the annual survival rates of Lesser Spotted Woodpeckers are relatively high. Wiktander (1998) reported a mean survival rate of 0.59 and, although there was considerable annual variation, in most years

Table 2. Comparison of key breeding parameters reported from studies of Lesser Spotted Woodpeckers <i>Dendrocopos minor</i> in Britain and elsewhere in Europe. Figures ± SD are given where available. N/A: not available.						
	UK Glue & Boswell (1994)	England RSPB pilot study 2005–2006	England Charman <i>et al.</i> (2012a)	England Smith (unpubl.) 1985–2011	Sweden Wiktander <i>et al.</i> (2001a)	Germany Rossmannith <i>et al.</i> (2007a)
Sample size	129	6	27	13	124	31
Project duration (years)	40	2	3	27	10	6
Clutch size ¹	5.2	N/A	5.2 ± 1.2	N/A	5.9 ± 0.3	5.4
Productivity ²	3.5	N/A	1.4 ± 1.7	1.6	3.5	N/A
Brood size ³	4.2	N/A	2.8 ± 1.4	3.7	4.6 ± 0.8	3.6
Breeding success ⁴	N/A	0.50 ± 0.55	0.59 ± 0.55	0.75	0.80 ± 0.22	0.74
Nest survival ⁵	0.83	0.67	0.52	0.44	N/A	N/A
Commonest cause of nest failure (% of observed failures)	N/A	Loss of one or more adults (67%)	Loss of one or more adults (55%)	Avian nest predation (67%)	Desertion by one or more adults (59%)	Avian nest predation (63%)
¹ The mean clutch size based on the maximum number of eggs recorded in each nest; ² mean number of fledglings produced per nesting attempt; ³ mean number of fledglings from successful nests; ⁴ proportion of nests fledging one or more young – derived from raw figures; ⁵ the nest survival derived from Mayfield analysis of daily nest success.						



Steve Dodd

174. Lesser Spotted Woodpecker nest in a dead apple *Malus* tree, at an orchard site in Worcestershire; nest found at egg stage, five chicks fledged successfully. Inset shows close-up of the nest hole.

males survived better than females. In Sweden, annual survival was the best predictor of population fluctuations from one year to the next. In Germany, Rossmanith *et al.* (2007b) reported a similar figure of 0.60. By analysing when colour-ringed birds disappeared from his study population, Wiklander (1998) was able to show that the breeding season was the period of highest mortality. Even Scandinavian winters did not seem to trouble his birds. However, Saari & Mikusiński (1996) showed that population fluctuations of Lesser Spotted Woodpeckers in the Finnish Baltic correlated with January–February temperature, while in Norway Steen *et al.* (2006) showed that population fluctuations were related to both December and June temperature – both studies thus suggesting at least some impact of winter conditions on populations. Selås *et al.* (2008) re-examined the data from Norway and suggested that the mechanism linking population fluctuations and June temperature was the micro moth *Argyresthia goedartella*, whose numbers were high in years following summers with high June temperature.

Rossmanith *et al.* (2007b) used the Swedish and German data to build population models of Lesser Spotted Woodpecker

populations and were able to infer best estimates for juvenile survival in the population. They were also able to show that polyandrous pairings were highly advantageous for the females and, although the productivity of the nest with the secondary male was often low, such a strategy was beneficial for the population as a whole when there was an excess of males (Rossmanith *et al.* 2006).

Conservation implications

The Lesser Spotted Woodpecker is a specialist woodpecker that is declining substantially in Britain and appears to be doing so elsewhere in northern Europe and Scandinavia. In northern Europe and Scandinavia, the causes of the decline appear to be related to forestry operations and the loss of patches of broadleaved woodland within largely coniferous mixed forests. In Britain, the causes of the decline are less clear. The species did exceptionally well during the initial outbreak of Dutch elm disease in the late 1960s/1970s but there has been a sustained decline since then. However, factors other than the loss of elm trees now appear to be driving that decline. Loss of old, traditional orchards will have been a factor in some parts of the range. The fact that birds are now found mainly in

well-wooded areas (whereas the nest record information up to the late 1980s suggests that nests in farmland and gardens were once common) may be a clue. Does the loss of elms and other hedgerow trees mean that the landscape in some parts of Britain is now less suitable for Lesser Spotted Woodpeckers than it once was?

Thanks to three major studies, we now have a good knowledge of many aspects of the life history of the Lesser Spotted Woodpecker, which will at least allow further work to be focused on key areas of its ecology. The current low breeding success linked to chick starvation in Britain is a cause of particular concern. Without figures for annual survival rates from the UK we cannot be certain, but it would seem feasible that breeding success is now sufficiently low to be driving the observed population declines (Charman *et al.* 2012a). Olsson's work showing the 'carryover effect' from the pre-breeding season suggests that in our efforts to identify the causes of the low breeding success we need to look in this period as well as the breeding period itself.

Lesser Spotted Woodpeckers nest comparatively late, with the peak of egg-laying about one week later than in the Great Spotted Woodpecker (Glue & Boswell 1994), so they are potentially vulnerable to a temporal mismatch between the caterpillar peak and their nesting cycle. In both Sweden and Germany

there were clear trends for late-nesting birds to do less well. In Britain this issue could be exacerbated by our comparatively mild Atlantic conditions and the trend to warmer springs in recent decades. Since the Lesser Spotted Woodpecker is a resident species, we would expect it to be able to respond, but this may not be possible if food resources are limiting in the pre-breeding season.

There is a need for basic information on the ecology of the Lesser Spotted Woodpecker in Britain during the pre-breeding period. For instance, we have no idea whether the larvae of the micro moth *Argyresthia goedarthella* play such an important role in Britain as they do in Scandinavia. This moth is relatively common in Britain (Plant 2008), associated with birch and alder trees, but we have relatively few observations of Lesser Spotted Woodpeckers foraging on these two tree species in the pre-breeding period. In fact, most observations at this time are of birds foraging on small-diameter live branches on oak trees. Is there some vital element of the ecology that we are missing in Britain?

It is apparent that the loss of mature hedgerow elms and old orchards will have been detrimental to Lesser Spotted Woodpeckers, but have there been any changes to the composition and structure of broadleaved woodlands that could also have been detrimental? There have been consistent



Mike Ilett



Alan Reynolds

175 & 176. Male and female Lesser Spotted Woodpeckers at nest-site in Hertfordshire, April 2012.

Monitoring Lesser Spotted Woodpeckers.

BOX 2

Numbers of Lesser Spotted Woodpeckers are now so low in Britain that it is important for all records throughout the year to be submitted by birdwatchers to their County Recorder or to BirdTrack (www.birdtrack.net). The best time to detect birds is in early spring (March–April), when they call and drum. After April, the adults go silent but nests can be located by the presence of chippings under a tree or the sound of noisy chicks. All records of breeding or suspected breeding should be submitted to the RBBP (www.rbbp.org.uk), preferably via the appropriate county recorder, and if you come across an active nest, details should also be submitted to the Nest Record Scheme of the BTO (www.bto.org/nrs). Even if you are unable to see the nest contents, details of the nesting tree (species, alive or dead) and timing of breeding will be valuable contributions. See box 1 for details of how to study the breeding success of hole-nesting species in natural nest-sites.

Once settled into incubation and feeding young, Lesser Spotted Woodpeckers can normally be viewed safely at the nest. However, they can be very fickle when prospecting and excavating a nest cavity so disturbance should be minimised at this time. If you find a nest, particularly at this stage, please bear in mind that there may be considerable demand from birdwatchers to view what is now a very rare species and you may need to facilitate safe viewing. The welfare of the birds should always come first.

changes in the vegetation structure and an overall increase in dead-wood availability in lowland broadleaved woodlands in the last two decades (Amar *et al.* 2010), often associated with the cessation of active management (Fuller *et al.* 2005), but it is difficult to see how these could have adversely affected Lesser Spotted Woodpeckers. In fact, the increase in dead wood would be expected to benefit them. In some areas birch has declined and matured as woodlands have become more closed (Amar *et al.* 2010; KWS pers. obs.) but this is not consistent across regions.

In the period when the Lesser Spotted Woodpecker has been declining in Britain, the Great Spotted has increased markedly and it is tempting to link these two trends. However, there is no evidence that the Great Spotted Woodpecker is directly linked to low breeding success of the Lesser Spotted. The main cause of nest failure in recent studies was chick starvation and no relationships were found between breeding success and the local abundance of the Great Spotted Woodpecker or the intensity of observed interactions between the two species at the Lesser Spotted Woodpecker nests (Charman *et al.* 2012a). However, we cannot rule out indirect effects such as increased overlap of dead-wood foraging niches or interference from Great Spotted Woodpeckers causing Lesser Spotted to abandon a part-excavated cavity leading to a delay in their nesting and reduced breeding success.

Although much has been learnt about the ecology of the Lesser Spotted Woodpecker

over the last decade, we are still a long way from being able to identify measures that might bring about a reversal of the downward population trend. Much more work is needed to confirm that low breeding success is the driver of the decline and to identify the exact mechanisms involved. The Lesser Spotted Woodpecker is now such a rare and elusive species in Britain that it has become a difficult bird for most birdwatchers to see. However, by submitting their records and making sure they 'look after' their birds, birdwatchers can make a big contribution to our knowledge base and, in due course, the development of conservation measures (see box 2).

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Dartford Warblers on the Thames Basin and Wealden Heaths

John M. Clark and John Eyre

Abstract The most recent full UK survey of Dartford Warblers *Sylvia undata* was carried out in 2006. At that time, the numbers located on the Thames Basin and Wealden Heaths Special Protection Areas (SPAs) represented over 25% of the national population. Taken together, these two SPAs held more Dartford Warblers than either of the traditional strongholds, the New Forest and the Dorset Heaths. Numbers on the Thames Basin and Wealden Heaths SPAs and some peripheral heathland areas have been monitored annually by experienced local observers since the region was recolonised following the severe winters of 1961/62 and 1962/63. The results of those surveys are reported here, including evidence of a dramatic population crash following the severe winters of 2008/09 and 2009/10. Factors affecting the populations over the period and prospects for the future are discussed.

In the UK, the Dartford Warbler *Sylvia undata* is more strongly associated with lowland heath than any other bird species. As a consequence, it has attained almost iconic status as an indicator of the condition and quality of its specialised habitat. It has been

the subject of regular national surveys, so that the recent history of its population is comparatively well known (Wotton *et al.* 2009).

Since the Dartford Warbler's discovery, in Kent in 1773, numbers in the UK have

Frank Blackburn



177. Male Dartford Warbler *Sylvia undata* on the Thames Basin Heaths SPA, April 1979.

fluctuated, building up during periods with mild winters but falling again after years with heavy snowfall and/or prolonged frost. The population crash which occurred as a result of the 1961/62 and 1962/63 winters has been well documented (Tubbs 1963, 1967). Numbers fell from c. 450 territories in 1961 to just 11 in 1963 (Tubbs 1967).

The species' susceptibility to harsh winters has also meant that its range has expanded and contracted, sometimes extending to suitable habitat throughout southern England (Wotton *et al.* 2009) but at other times, as in 1963, being restricted to small areas of prime habitat near the south coast (Tubbs 1967).

Following the population collapse in the early 1960s, national surveys were carried out in 1974 (Bibby & Tubbs 1975), 1984 (Robins & Bibby 1985), 1994 (Gibbons & Wotton 1996) and 2006 (Wotton *et al.* 2009). Over that period, Dartford Warbler numbers recovered, relatively slowly at first, reaching 560 territories by 1974, falling back to 420 in 1984 after several colder-than-average winters, but then growing more rapidly, to 1,889 in 1994 and an estimated record high of 3,214 in 2006. Over the same period, the range expanded until, at the time of the 2006 survey, suitable habitat was occupied as far north as Norfolk and Staffordshire, and in several counties in south Wales. As the population grew, habitat at higher altitudes was colonised. In 1974 none was found above an altitude of 120 m above sea level but by 2006 6.8% of the UK population was found on heathland above 250 m (Bradbury *et al.* 2011).

Three successive winters in the past decade, those of 2008/09, 2009/10 and 2010/11, were particularly severe in southeast England. A postscript to the 2006 survey report (Wotton *et al.* 2009) refers to 'anecdotal reports, particularly from sites in the Thames Basin and Wealden Heaths, that Dartford Warbler numbers... appear to have crashed

following this cold spell of weather [in early 2009]'. The purpose of this paper is to document the history of these populations, particularly in recent years, and consider the factors, including climatic conditions, which have influenced their numbers.

The Thames Basin and Wealden Heaths SPAs

Both of these SPAs are composite sites incorporating remaining fragments of lowland heath in the Thames Basin and Western Weald of southern England (fig. 1). Both qualify as SPAs under Article 4.1 of the EC Birds Directive (79/409/EEC) by supporting populations of European importance of three species listed in Annex 1 of the Directive: European Nightjar *Caprimulgus europaeus*, Woodlark *Lullula arborea* and Dartford Warbler.

The Thames Basin Heaths SPA comprises 13 Sites of Special Scientific Interest (SSSIs) in Berkshire, Hampshire and Surrey (table 1). It covers a total area of 8,275 ha, of which 3,641 ha are classified as lowland heath (<http://jncc.defra.gov.uk>). The Wealden Heaths SPA, which lies immediately to the south, in Hampshire, Surrey and West Sussex, comprises five SSSIs and covers a total area of 3,924 ha, of which 2,061 ha is lowland heath

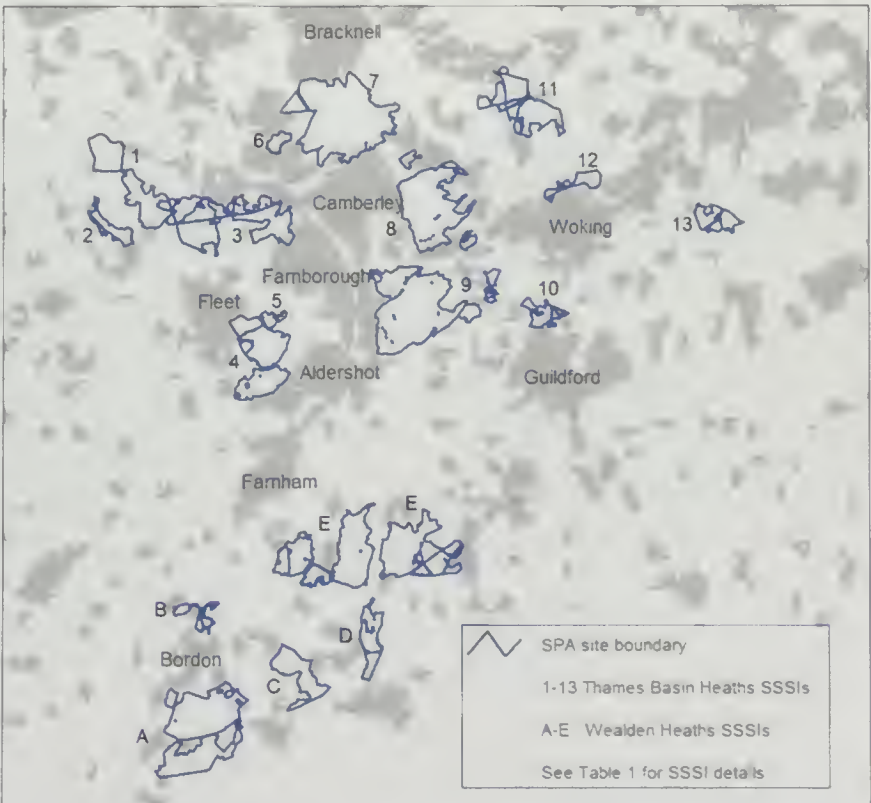


Fig. 1. Map showing the boundaries of Thames Basin and Wealden Heaths component SSSIs, and the main population centres of the area.

Table 1. Thames Basin and Wealden Heaths component SSSIs with maximum territory counts during 1970–93 and 1995–2008, national survey totals in 1994 and 2006, and counts in 2009–11.

Map ref	Thames Basin Heaths component SSSIs	Max. count 1970–93		1994 survey	Max. count 1995–08		2006 survey	2009	2010	2011
1	Bramshill	2	1989	3	17	2003	11	0	0	0
2	Hazeley Heath	0		0	7	2005	1	1	2	0
3	Castle Bottom to Yateley & Hawley Commons	8	1983	6	40	2000	28	9	9	10
4	Bourley & Long Valley	11	1990	10	43	2003	25	6	5	10
5	Eelmoor Marsh	0		0	5	2004	3	0	1	1
6	Sandhurst to Owlsmoor Bogs & Heaths	3	1993	2	13	2003	3	2	0	1
7	Broadmoor to Bagshot Heaths & Woods	0		0	53	2008	23	1	1	2
8	Colony Bog & Bagshot Heaths	3	1984	12	147	2003	58	13	3	4
9	Ash to Brookwood Heaths	69	1990	34	267	2003	132	21	3	9
10	Whitmoor Common	0		0	8	2008	5	0	0	0
11	Chobham Common	10	1990	27	119	2007	93	7	14	10
12	Horsell Common	0		0	20	2004	3	0	0	0
13	Ockham & Wisley Commons	0		0	4	2008	2	1	0	0
Wealden Heaths component SSSIs										
A	Woolmer Forest	3	1976	31	143	2005	84	24	2	0
B	Broxhead & Kingsley Commons	2	1980	4	14	2007	13	0	0	0
C	Bramshott & Ludshott Commons	17	1978	32	52	2003	33	7	7	2
D	Devil's Punch Bowl	5	1985	1	11	2008	9	0	0	0
E	Thursley, Hankley & Frensham Commons	40	1984	86	248	2004	136	20	3	4



178. Dartford Warbler habitat on Ash Ranges, part of Ash to Brookwood SSSI, March 2011.

(table 1). With a combined area of 5,702 ha of heathland, these two SPAs represent an important remnant of once far more extensive areas of this specialised habitat, around 80% of which has been lost from the region over the past 200 years (C. R. Tubbs *in litt.*).

Classification of the Wealden Heaths SPA occurred in two stages. Phase 1, comprising Thursley, Hankley and Frensham Commons SSSIs, was classified in February 1994. Based on the 1984 survey results, this area held 1.3% of the national population of breeding Dartford Warblers. Classification of Phase 2 followed in March 1998 when four additional SSSIs (Bramshott & Ludshott Commons, Broxhead & Kingsley Commons, Devil's Punch Bowl and Woolmer Forest) were incorporated into the SPA. Together, these added another 1% of the national Dartford Warbler population, based on the 1994 survey. The Thames Basin Heaths SPA was proposed in 2000 but classification was delayed until March 2005 while some of the component sites were designated as SSSIs. At the time of the proposal, it held 445 territories or 27.8% of the UK breeding population of Dartford Warblers based on survey work co-ordinated by the RSPB in 1999 (<http://jncc.defra.gov.uk>).

Land use and habitat

Most of the remaining heathland in these two SPAs exists in the form of large commons, many of which are owned by the Ministry of Defence and used as rifle ranges or training areas. Other landowners include the National Trust, Natural England, the Hampshire and Surrey Wildlife Trusts and various local authorities. Some sites were planted with conifers in the middle years of the twentieth century and are managed by the Forestry Commission or Crown Estates. Some of these have undergone, or are undergoing, gravel extraction during the rotational harvesting of the trees. The whole area is heavily populated, with several large towns interspersed among the SPA component sites (fig. 1). There are also plans for further major housing developments in proximity to many of them.

Of the combined area of 12,199 ha, 46.7% (5,702 ha) is described in the SPA data forms (<http://jncc.defra.gov.uk>) as heathland (more specifically as 'heath, scrub, maquis and garrigue, and phygrana'), but this percentage varies markedly from site to site. For example, in the Thames Basin, virtually the entire Ash to Brookwood Heaths SSSI, 1,576 ha in total, is classed as mainly lowland heath



Barry James

179. Transient Dartford Warbler habitat following clear-felling of forestry plantation on Bramshill SSSI, January 2012.

(www.sssi.naturalengland.org.uk), although in fact only about 60% is suitable for Dartford Warblers. Here, the extensive dry areas support open heathland dominated by Heather *Calluna vulgaris* together with Bell Heather *Erica cinerea*, Gorse *Ulex europaeus*, Dwarf Gorse *U. minor* and in some areas Bracken *Pteridium aquilinum*. In contrast, the 673 ha of Bramshill SSSI is predominantly conifer plantation, where suitable habitat is both scarce and transient, occurring only between periods of clear-felling and regrowth of forestry compartments.

Survey history

The Thames Basin and Wealden Heaths straddle the county boundaries of Berkshire, Hampshire, Surrey and Sussex. Given the county-based recording system in the region, co-ordinated monitoring of the area may not have happened but for the emergence in the late 1960s of an enthusiastic group of young birdwatchers at Farnborough Grammar School, led by biology teacher Ewart Jones. This group began regular bird recording in an area which extended up to 8 km either side of the Hampshire/Surrey border and thus included most of the heathland sites which now constitute the Thames Basin and Wealden Heaths SPAs. The first *Hants/Surrey Border Bird Report* (HSBBR), for 1971, edited by one of the authors of this paper (JMC), appeared in April 1972, and contained the results of a survey of the east Hampshire heathlands; no Dartford Warblers were found. Subsequent editions contained much more information as many other local observers contributed.

In the early and mid 1970s, available information was collected in a *post hoc* fashion. From 1977, most heathland sites were surveyed annually for a suite of species, either by individuals or by teams of observers on the larger sites. However, there were still gaps in the coverage, especially at Chobham Common, which was outside the HSBBR area. The announcement of the national Dartford Warbler survey for 1994 was the trigger for JMC to formalise the organisation of annual heathland surveys. Recording forms and instructions were sent to observers with the aim of monitoring the full range of heathland birds, including Hobby *Falco sub-*

buteo, Tree Pipit *Anthus trivialis*, Meadow Pipit *A. pratensis*, Common Redstart *Phoenicurus phoenicurus* and European Stonechat *Saxicola rubicola* as well as the three Annex 1 species.

It was also in 1994 that the EC Habitats Directive was adopted into UK law. This gave added momentum to the establishment of heathland SPAs, which in turn provided stimulus and purpose to the Thames Basin and Wealden Heaths monitoring programmes. The data were used both to justify and to classify the SPAs and, subsequently, to inform decisions relating to development control and land and access management in the face of increasing recreational pressure from the burgeoning human population in the region.

In 2003, the value of the data was recognised by Natural England (then English Nature) with the formalisation of an agreement with the authors to co-ordinate monitoring of Annex 1 birds across the proposed Thames Basin Heaths SPA. This has continued on an annual basis. Although a similar agreement is not in place for the Wealden Heaths, possibly because developmental pressure is less, annual surveys have been maintained.

Survey methods

The method used to monitor Dartford Warblers remained largely unchanged throughout the 1994–2011 recording period. It was based on that used for the 1994 national Dartford Warbler survey (Gibbons & Wotton 1996), for which coverage of the two SPAs was organised by the authors. Most sites were covered by local observers who had worked on the same areas for several years and as a consequence were very familiar with their patches. Some of the larger sites were subdivided to facilitate coverage. Observers were asked to visit their designated sites at least twice, but preferably more frequently, between April and July and to record all Dartford Warbler contacts on their field maps. Most contacts were with singing males, which were considered as indicative of breeding territories.

At the end of the survey period, observers were requested to interpret their survey results and to indicate on their maps the number and locations of Dartford Warbler territories. In general, further interpretation of the data was

not required, the numbers of territories estimated by the observers being considered the most reliable information available.

Results

Pre 1994

As a result of the severe winter of 1946/47, Dartford Warblers were apparently wiped out from the study area and were not recorded again until 1952. A slow recovery followed and by 1961 there were estimated to be 45–50 territories (Tubbs 1963), although this was probably below the true figure. A period of heavy snow in late December 1961 largely exterminated the species (Raynsford 1963). In 1962, single territories survived at one site in Surrey and at two in Hampshire with breeding proved at one of them (Clark 1984). However, the infamous severe winter of 1962/63 undoubtedly accounted for any survivors. Elsewhere, only 11 territories were recorded in England, with six in the New Forest, four in Dorset and one on the downs in East Sussex (Tubbs 1967). The species' recovery was slow, but the first return to the study area was noted in 1969, when one pair bred at Chobham Common on the Thames Basin Heaths (D. Parr *in litt.*). There were no further records from Chobham until 1984 but regular breeding recommenced at Ash Ranges in 1970, while the first breeding on the Wealden Heaths was at Hankley Common in 1973.

The numbers of Dartford Warbler territories in the Thames Basin and Wealden Heaths area for the period 1968–93 are shown in fig. 2. Coverage

was almost complete in 1977–85 but less so in other years. In years when certain sites were not covered, data from earlier and later years and trends at surveyed sites were used to estimate the missing data.

Post 1994

In 1994, to coincide with the national survey of Dartford Warblers, the organised monitoring of all the heathlands described above began. The numbers of territories for 1994–2011 are shown in fig. 3. Coverage was complete in some years but estimates were necessary in a few instances when particular sites were not surveyed or only partially covered.

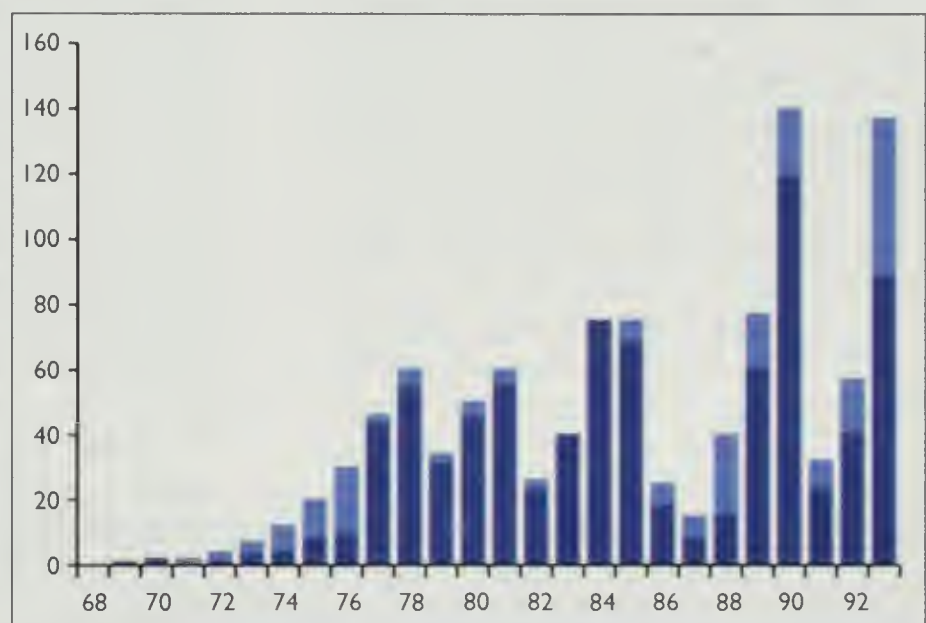


Fig. 2. Number of Dartford Warbler territories on the Thames Basin and Wealden Heaths, 1968–93 (estimated portion of total shown in pale blue).

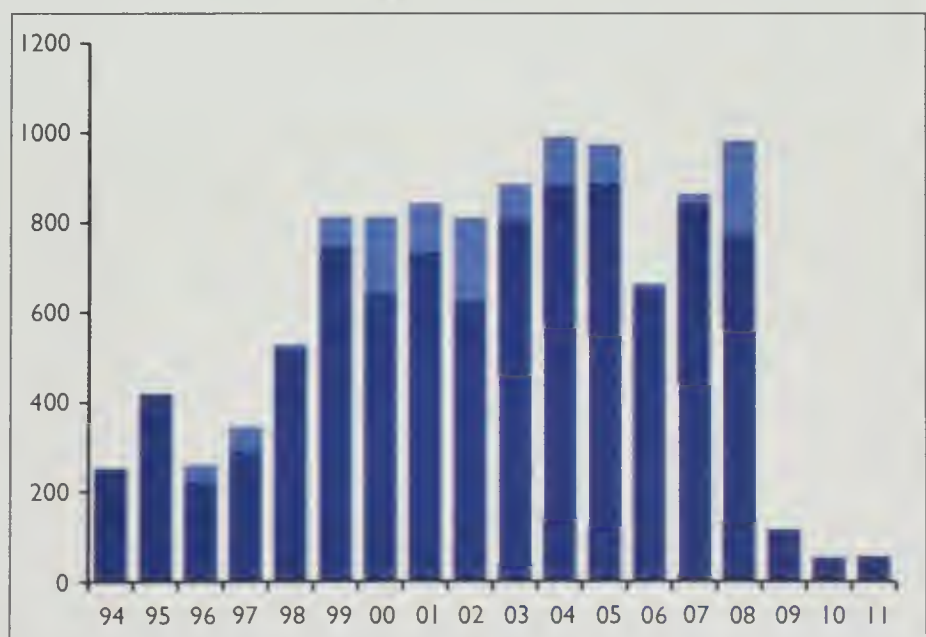


Fig. 3. Number of Dartford Warbler territories on the Thames Basin and Wealden Heaths, 1994–2011 (estimated portion of total shown in pale blue).

Interpretation of results

As figs. 2 and 3 show, the population of Dartford Warblers on the Thames Basin and Wealden Heaths SPAs increased from zero in 1968 to a peak of almost 1,000 territories in 2004 before collapsing to just 50 territories in 2010. During more than 40 years of recording, the data show periods of rapid growth followed by setbacks, which can be explained by two factors: severe winters and major fires.

The population increase through the 1970s was tempered by extensive heath fires, which destroyed much suitable habitat in 1974 and again in the hot summer of 1976. Dartford Warblers were also badly affected by heavy snowfall in the winters of 1978/79, 1981/82, 1985/86 and 1986/87. Nonetheless, in 1990 the population in the study area surged to an estimate of 140 territories, the first time it had reached this level since the 1930s. However, a double disaster was to strike. On Ash Ranges (part of Ash to Brookwood Heaths SSSI), which held 69 territories, a massive fire in the late summer of 1990 destroyed almost all the suitable habitat (plate 180), while a further spell of severe winter weather in early 1991 depleted the population to just 24 known territories (including only three on Ash Ranges) and an estimated total of 32. Mild winters and a lack of heath fires permitted a rapid recovery,

however, such that the 1990 level was exceeded in 1994.

The Dartford population continued to grow through the 1990s. The main setback during this decade was in early 1996, when a spell of hard weather had localised effects, most noticeably at Ludshott Common, where numbers fell from 43 territories in 1995 to one in 1996. At 170 m, this Wealden site is the highest in the study area apart from the nearby Devil's Punch Bowl, and as a consequence it suffered comparatively heavy snowfall. In 1999 the population reached an estimated 808 territories, although a late-summer fire on Ash Ranges, the most important site with 212 territories, destroyed the habitat in 48 (22.6%) of those territories. Subsequently numbers increased slowly and peaked in 2004, when 886 territories were counted and a total of 987 was estimated. This figure would almost certainly have been higher but for an extensive fire in early 2003 on Pirbright Ranges (part of Colony Bog & Bagshot Heaths SSSI); this held 114 territories in 2001, an estimated 105 in 2002 but only 23 in 2003. At this time, densities at sites with optimum habitat reached or even exceeded 20 territories per 100 ha. On 785 ha of good habitat on Ash Ranges, probably the most densely populated area in the UK, numbers peaked at 253 territories in 2003, a density of 32.2 per 100 ha.



180. Ash Ranges following the major heath fire in August 1990. The blackened ground and 'burnt-out' Silver Birch *Betula pendula* trees give an almost unworldly feel to the landscape.

Frank Blackburn

The winter of 2005/06 was colder than average and the 2006 total was 32% lower than that in 2005 (and the lowest in the first eight years of the decade), at an estimated 659 territories. The national survey in 2006 still produced a record total, however, estimated at 3,214 territories (Wotton *et al.* 2009). Wotton *et al.* applied a correction factor to allow for birds that may have been missed when sites were visited fewer than four times. Thus the total counted on the two SPAs was increased from 654 (counted) to 691 (95% confidence limits of 500–897). We considered this to be an overestimate and, to be consistent with the methodology adopted for our other counts, increased the observers' counts by only five additional territories (to the 659 shown in fig. 3). Mild weather prevailed in the winters 06/07 and 07/08, allowing a further increase to an estimated 978 territories in 2008. Following that summer, however, the species' extreme vulnerability to severe weather was graphically demonstrated. Prolonged spells of hard frost and heavy snowfall in the winters of 08/09 and 09/10 triggered a decline to 112 territories in 2009 (a fall of 88.5%) and 50 territories

in 2010 (55.4%). This brought the population to its lowest level since 1991. Despite a further spell of severe winter weather in December 2010, numbers increased slightly to 53 territories in 2011.

Weather in the 2008/09, 2009/10 and 2010/11 winters

The percentage drop in Dartford Warbler numbers after the 2008/09 winter was the largest on record since the 1960s, when the species was eliminated on the Thames Basin and Wealden Heaths. This suggests that conditions in the 08/09 winter were more severe than in any during the intervening years. In fact, the first ten days of January 2009 were particularly cold across the region. With high pressure and little wind, temperatures fell quickly to bring unusually severe frosts. At Farnborough, Hampshire, the mean daily temperature exceeded freezing point on only one day between January 3rd and 10th, with the lowest temperature of -10.7°C recorded on 7th January (www.tutiempo.net). That prolonged spell of freezing conditions would undoubtedly have taken its toll on a small insectivorous passerine but the situation



John Eyre

181. Snow cover on Bourley & Long Valley SSSI, February 2009.

worsened in early February. There were heavy snowfalls overnight on February 1st/2nd with Hampshire and Surrey particularly badly hit. On 2nd February, snow depths of 31 cm were recorded at Epsom, Surrey (in the Thames Basin), and 23 cm at Alice Holt, Hampshire, on the western edge of the Weald (www.metoffice.gov.uk). The evidence suggests that the Thames Basin and Wealden Heaths area had its heaviest snowfall since late December 1962. The thick snow cover lay through the following week, blanketing Dartford Warbler habitat on all the heathland sites.

Low temperatures and heavy snowfall are unusual in the Thames Basin and Western Weald, so it was surprising that, during the following winter, January 2010 was the coldest month on record since 1987. In Fleet, snow showers began on 2nd January and heavy falls on 5th and 6th gave a maximum cover of 23 cm on 6th (*Climatological Observers Link* 477, January 2010). As in 2009, snow blanketed Dartford Warbler habitat for several days and resulted in a further fall in their numbers. Together, the two consecutive winters resulted in a population reduction of almost 95%.

In the 2010/11 winter, December was the coldest in over 100 years and the coldest month since February 1986, with the average temperature 5°C below the 1971–2000 mean. Snow fell to a depth of 25 cm in Surrey on 1st–2nd and further heavy falls were recorded on 18th and 20th. A gradual thaw set in at the end of the month and conditions during the rest of the winter were generally mild with few frosts. Local observers feared the worst but, surprisingly, survey work in 2011 revealed an overall increase from 50 to 53 territories, although this masked a greater increase on the Thames Basin Heaths, from 38 to 47 territories, and a decrease on the Wealden Heaths from 12 to 6, two of which held unpaired males.

Discussion

Implications for habitat management

Prior to 2009, there was a widespread perception that the growth in Dartford Warbler numbers over the preceding two decades was due, at least in part, to active management of the habitat on both SPAs. It is certainly true

that clearance of scrub and woodland on some of the sites had created additional habitat but the impact of the 2008/09 and 2009/10 winters suggests that the population growth owed more to the run of mild winters than to increased availability of habitat. The fact that numbers did not fall further following a third successive hard winter is surprising. A possible explanation is that in 2010/11 the heavy snowfall occurred early in the winter, when the birds would have been in better physical condition to locate food supplies and survive through to the spring.

However, the survey results do give some clues about how habitat might be better managed to maximise the chances of the birds surviving hard winters. Although almost 95% of the population succumbed during the 2008/09 and 2009/10 winters, most of the birds that survived were found in areas containing extensive areas of dense gorse. Sites with less gorse, such as Ash Ranges and Hankley Common, suffered the heaviest losses. This observation is consistent with previous findings (Bibby 1977) and points to gorse management as a key factor in optimising Dartford Warbler habitat. Studies have shown that the birds obtain the majority of their invertebrate food from gorse where it is available (Bibby 1979). Dense gorse also provides a refuge during periods of heavy snowfall because, unlike heather, it is able to support the snow thus maintaining shelter and access to food beneath the canopy. For Dartford Warblers, we believe that one of the aims of heathland management should be to retain areas of dense, medium-height gorse. Its wholesale removal, through cutting, overgrazing or fires, risks reducing the chances of birds surviving hard winters. This is more critical for Dartford Warblers than for other gorse-dwelling insectivorous birds, such as Stonechats. Whereas most adult Dartford Warblers remain on the Thames Basin and Wealden Heaths throughout the year, the majority of Stonechats leave in autumn and do not return until late February or March.

The Thames Basin and Wealden Heaths populations in the national context

Long-term monitoring has shown how important the Thames Basin and Wealden

Heaths SPAs are to the UK population of Dartford Warblers. A total of almost 1,000 territories at times of peak numbers represents in excess of 25% of the national figure. In the national survey of 2006, their combined populations exceeded those of both the New Forest and the Dorset Heaths SPAs (Wotton *et al.* 2009). The protection afforded by SPA status should ensure that the area of lowland heath in the Thames Basin and Western Weald is not further eroded. However, plans to build many new houses in proximity to both areas means that recreational pressures at some of the sites are likely to increase, leading to more fires and higher levels of disturbance. If the SPAs are to retain their value as prime sites for Dartford Warblers in the UK, it is crucial that the habitat is maintained in the best possible condition and plans to minimise disturbance are implemented as soon as possible. Then, weather permitting, the population of this iconic species should recover and be sustainable at the high level recorded in recent years.

Acknowledgments

Thanks are due to the landowners who have allowed access to their sites and indeed encouraged our monitoring work, and of course to the many observers who have contributed to the fieldwork over the years, particularly James Adler, Doug Boyd, Ray Brown, David Cary, John Collman, Alan Cox, Patrick Crowley, Richard Denyer, Jeremy Gates, David Hollow, Andy James, Barry James, Ted Lintott, John Little, Shaun Peters, Gilbert Rowland, Matthew Shaft and Keith Wills. Thanks are also due to Simon Wotton (RSPB), who answered several

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John Clark is a lifelong resident of Hampshire and started birding in the county in 1968, at the age of 15. Having produced the annual *Hants/Surrey Border Bird Report* from 1971 onwards, his *Birds of the Hants/Surrey Border* was published in 1984 (and he is currently working on a new edition). He joined the county records panel in 1977, edited the *Hampshire Bird Report* through the 1980s, co-edited (with John Eyre) *Birds of Hampshire*, published in 1993, and was county recorder from 1993 to 2010. John Eyre began birding in Hampshire in 1976 when he moved into the county from Cheshire. Subsequently, he has been actively involved in Hampshire Ornithological Society, first as Chairman of the Field Studies Committee and then as Chairman of the Society, from 1992 to 2012. He co-edited *Birds of Hampshire* with John Clark, co-author of this paper. He is particularly interested in heathland birds and is currently working on the productivity of Woodlarks *Lullula arborea* on the Thames Basin Heaths SPA.



Short papers

A genetic analysis of the first British Siberian Stonechat

Abstract A first-winter female Siberian Stonechat *Saxicola maurus* shot on the Isle of May in October 1913 was the first British record of this species, and one of the few British records that has been assigned to the nominate subspecies. DNA from the mounted specimen was analysed; it matched known specimens of nominate *maurus*, and was clearly genetically divergent from *S. m. stejnegeri*, which is morphologically very similar to *maurus*. ‘Caspian Stonechat’ *S. m. variegatus*, the only other subspecies of Siberian Stonechat to have reached western Europe, can be eliminated on plumage characters.

Based on a combination of genetic and morphological data, BOURC now treats the stonechats inhabiting Europe, Asia and Africa as three distinct species: European Stonechat *S. rubicola*, Siberian Stonechat *Saxicola maurus* and African Stonechat *S. torquatus* (Sangster *et al.* 2011; BOU 2012). (See *Brit. Birds* 104: 238 for a range map of the complex.) Siberian Stonechat is now regarded as a polytypic species with six subspecies in three geographically defined groups:

- The northerly subspecies *S. m. maurus* and *S. m. stejnegeri* are widely distributed across western and eastern Siberia respectively, with some *maurus* extending west of the Urals, and occasionally breeding as far west as eastern Finland (e.g. Jännes & Nikander 1993, Valkama *et al.* 2011).
- ‘Caspian Stonechat’ *S. m. variegatus* breeds along the western fringes of the Caspian Sea, from southwestern Kazakhstan and the Astrakan region of Russia to Azerbaijan, while *S. m. armenicus* inhabits the Caucasus region, including eastern Turkey, Georgia and Armenia, south to Iraq and the mountains of northern Iran
- The southeastern subspecies, *S. m. indicus* and *S. m. przewalskii*, breed in the Himalayas, the Tibetan Plateau and mountains of central and southwest China.

Vagrant Siberian Stonechats in western Europe are usually accepted as indetermi-

nate *maurus/stejnegeri*, since these two taxa are morphologically very similar. There are just three accepted records of *variegatus* in Britain, and no records of *armenicus* (which is regarded as an unlikely vagrant on account of its southerly distribution and short-range migration). The subspecies *indicus* and *przewalskii* are altitudinal migrants and are not considered to be potential vagrants. Although there are some average differences between them, such as the width of the bill (Svensson 1992), the robust separation of first-winter nominate *maurus* and *stejnegeri* on plumage and structural features alone has not yet been formally defined. All claimed records of nominate *maurus* are in need of review (Parkin & Knox 2010).

Recent DNA sequencing data show that nominate *maurus* and *stejnegeri* are, in spite of their plumage similarity, genetically highly distinct, raising the possibility that a further split may be justified (Zink *et al.* 2009). This makes the subspecific identification of vagrants a high priority.

A first-winter female Siberian Stonechat was shot on the Isle of May on 10th October 1913 (Baxter & Rintoul 1913; Forrester *et al.* 2007). It was preserved as a mounted specimen at National Museums Scotland (accession no. NMSZ.1913.239.2). It is currently accepted, not only as the first British record of the species but as one of the few British records that has been assigned to the nominate subspecies.

Methods

A single toepad was obtained from the Isle of May specimen. For comparison, toepads were also taken from three other specimens at National Museums Scotland: *S. m. maurus* from Pechora, Russia, 4th May 1875 (accession no. NMSZ.1917.2.656), *S. maurus* of indeterminate subspecies from Basra, Iraq, 14th March 1918 (accession no. NMSZ.1920.2.44), and *S. r. rubicola* from Algeciras, Spain, 2nd April 1919 (accession no. NMSZ.1920.90.80).

DNA was extracted from toepads using the QIAGEN Micro-DNA Kit, with addition of 20 µl 0.1 M dithiothreitol into the lysis mix. By aligning DNA sequences in the NCBI GenBank database from several individuals of *S. rubicola*, *S. m. maurus*, *S. m. stejnegeri* and *S. m. armenicus*, PCR primers were designed to amplify short 220 base-pair (bp) stretches of the mitochondrial ND2 gene from all relevant subspecies of both stonechat species. The primer pairs used were as follows.

1) SaxND2F1: ACCTCCAGCCTACTCCTAG, 2) SaxND2R2: CCGGTYTGTTCATGCGTTAG, 3) SaxND2F4: GCTGAATGGCTATCATTATCG and SaxND2R4: GGCAGGAAGCCTGTTAAAGG. PCR was performed for 35 cycles, with annealing temperature 55°C and DNA recovered using the QIAGEN Gel Extraction kit. Sequencing was performed by Source BioScience Lifesciences. In total, 640 bp of the ND2 gene were successfully amplified from each bird, of which 437 bp were sequenced. The sequences of the Isle of May bird were deposited in the European Nucleotide Archive (EMBL-Bank) with accession numbers HE806300 and HE806301. The sequences were fed into NCBI Nucleotide BLAST (<http://blast.ncbi.nlm.nih.gov/Blast.cgi>) to compare to previously analysed individuals of all *Saxicola* taxa. Alignments and comparisons, and the UPGMA gene tree were performed using CLC Sequence Viewer 6.

Molecular sexing was carried out on the Isle of May bird using the ATP5A1 F2/R1 primers described by Bantock *et al.* (2008). Two PCR bands at 230 bp and 240 bp were obtained, indicating that it was a female.

Fig. 1. Colour-coded alignment of 214 bp of ND2 gene sequence taken from the Isle of May stonechat (top line), a Siberian Stonechat *Saxicola m. maurus* from the Pechora River region of European Russia (second line), a European Stonechat *S. rubicola* from Spain (third line) and a Siberian Stonechat *S. m. stejnegeri* from Magadan in the Russian Far East (bottom line). The 'Conservation' pink bars highlight where DNA base-pair changes have occurred between any of the sequences.

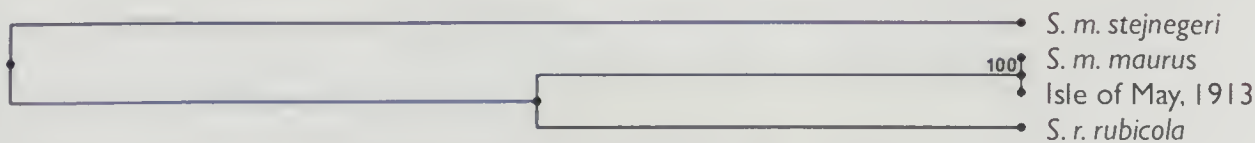
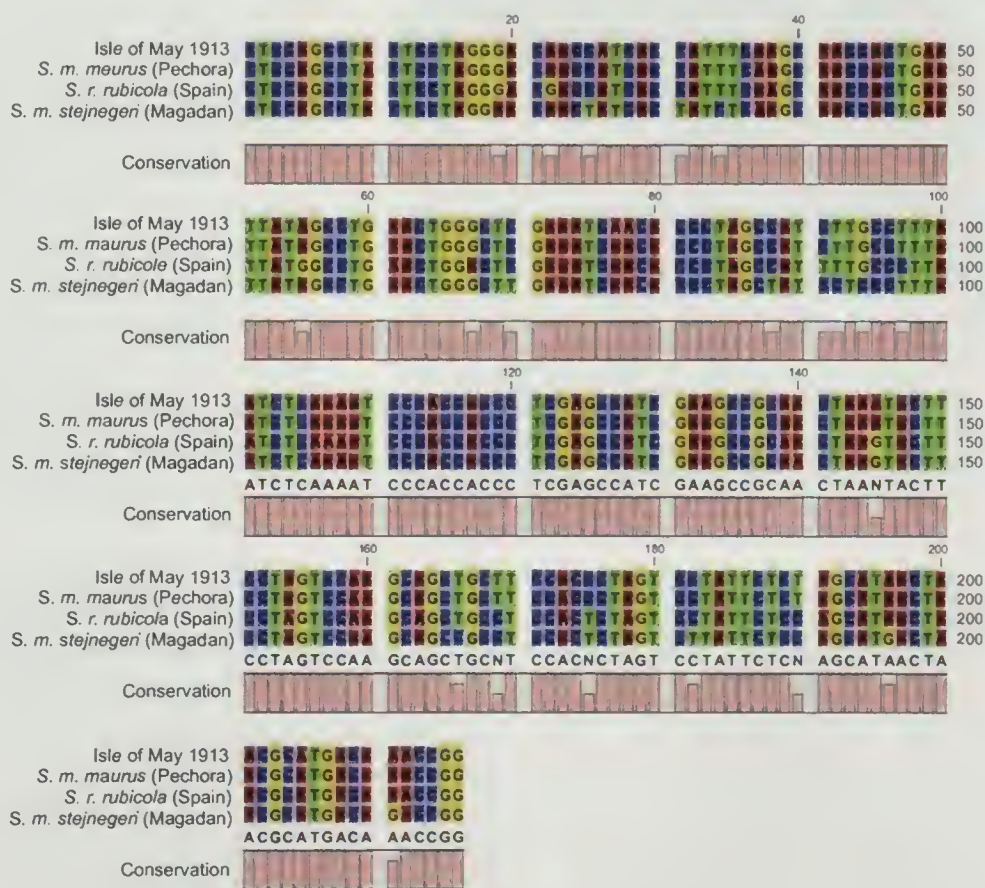


Fig. 2. Unweighted Pair Group Method with Arithmetic Mean (UPGMA) gene tree comparing the DNA sequence of the four stonechats analysed for this study: the Isle of May stonechat and sample *S. m. maurus*, *S. m. stejnegeri* and *S. rubicola*. The horizontal axis is proportionate to the degree of divergence. The Isle of May stonechat is identical to nominate *maurus*.

Results

The Isle of May specimen is shown in plates 182–184. The plumage features are those of a classic first-winter Siberian Stonechat. There is no white at the base of the tail (plate 182), which is black to the feather bases, eliminating *variegatus* and, probably, *armenicus*. In order to establish whether this individual can be assigned to nominate *maurus* (and hence to confirm that this subspecies can be supported on the British List), a genetic analysis was undertaken on DNA isolated from a toepad of the specimen, as described above. The DNA was sequenced and compared with

that of all other *Saxicola* taxa previously deposited in GenBank – an annotated collection of all publically available DNA sequences (www.ncbi.nlm.nih.gov/genbank).

The sequence from the Isle of May bird was found to diverge from European and African Stonechats by approximately 5%, and by 8% from any individual of *stejnegeri*. The mtDNA sequence of the Isle of May bird is identical to that found in many individuals of nominate *maurus* from locations throughout western and central Siberia including Tyva, Gorno-Altay, Almaty, Irkutsk, Arhangay and Ovorhangay. This sequence is also found in some specimens from the Astrakhan region, which includes the Russian coastline of the Caspian Sea and is thus within the breeding range of *variegatus*. However, the lack of white in the tail of the Isle of May bird eliminates *variegatus*. It should be noted that *armenicus* has not been properly sampled genetically, and it is possible that the same DNA sequence may be found in that taxon too. However, the DNA work establishes that the Isle of May bird is unequivocally not *stejnegeri* and, in combination with plumage features, that it should be confirmed as nominate *maurus*.

Of the three other stonechats sequenced at the same time for a direct comparison, the Pechora bird was genetically identical to the Isle of May bird. The sequence of the Basra bird was identical to only four birds in GenBank, all from the Astrakhan region,



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182–184. First-winter female Siberian Stonechat *Saxicola m. maurus*, taken on the Isle of May on 10th October 1913.

suggesting that it may represent a migrant *variegatus* (although, as discussed above, *armenicus* has not been thoroughly sampled and cannot be ruled out); this specimen has white in the outer rectrices. The Spanish bird was genetically identical to several database sequences of European Stonechat sampled from locations across Europe, from Spain to Turkey.

A colour-coded alignment of a sample 214-bp sequence from the Isle of May, Pechora and Spanish birds, together with the equivalent sequence from a *stejnegeri* from Magadan (in the Russian Far East, on the shores of the Sea of Okhotsk), is presented in fig. 1. An illustrative gene tree showing that the Pechora and Isle of May birds are genetically identical, with the Spanish bird next closest and the *stejnegeri* from Magadan being more distantly related, is shown in fig. 2.

Conclusions

The 1913 Isle of May Siberian Stonechat is not assignable to subspecies *stejnegeri* and is considered to be nominate *maurus*. On mtDNA alone, *variegatus* and possibly *armenicus* cannot be ruled out, but *variegatus* is extremely rare and *armenicus* unknown in Britain (and *variegatus* at least should show white in the tail). The DNA analysis performed would be applicable to any Common or Siberian Stonechat for which material is available, such as a feather from a trapped bird or a toepad from a museum specimen. Admission of *stejnegeri* to the British List will probably require genetic confirmation, and to achieve this we would encourage the

salvage of any corpse or the retention of any feathers that fall from trapped Siberian Stonechats. Genetic analysis of other extralimital Siberian Stonechats from European museums should also be undertaken.

Acknowledgments

We thank Pierre-André Crochet, George Sangster and Michael D. Sorenson for advice on extraction and processing of museum-specimen DNA. William Velmala provided data on the breeding status of *maurus* in Finland.

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Visualising bird occurrence – harnessing the power of the birding community

Abstract The global online bird recording system eBird (www.ebird.org) was developed in the USA but recently became available worldwide. Here, two examples are used to demonstrate the power of the system to harness records generated by birders and improve our understanding of biological patterns.

More than a decade into the twenty-first century, the power of birding and its potential for helping science and conservation is finally being realised on a massive scale. Millions of people around the world watch birds for personal enjoyment every day, and harnessing these observations can tell us a lot about what is happening to bird populations, at both small and large scales.

The eBird (www.ebird.org) online system is free to use and designed to gather birders' observations for science and conservation (Sullivan *et al.* 2009; Wood *et al.* 2011). It was developed in the USA and was launched in 2002 by the Cornell Lab of Ornithology and

the National Audubon Society. While eBird is at present used primarily by US birders, records from across the world can now be accepted into the system. The system serves the needs of the birding community by providing personal list-keeping services, bird-finding and trip-planning information, and comparative totals that engage birders' competitive spirit. The output tools allow anyone, birder and scientist alike, to explore the database for new and interesting biological patterns. Indeed, eBird (which currently gathers some 2–3 million bird records per month) is already providing much new insight into bird distribution and abundance in the Americas by creating novel ways to

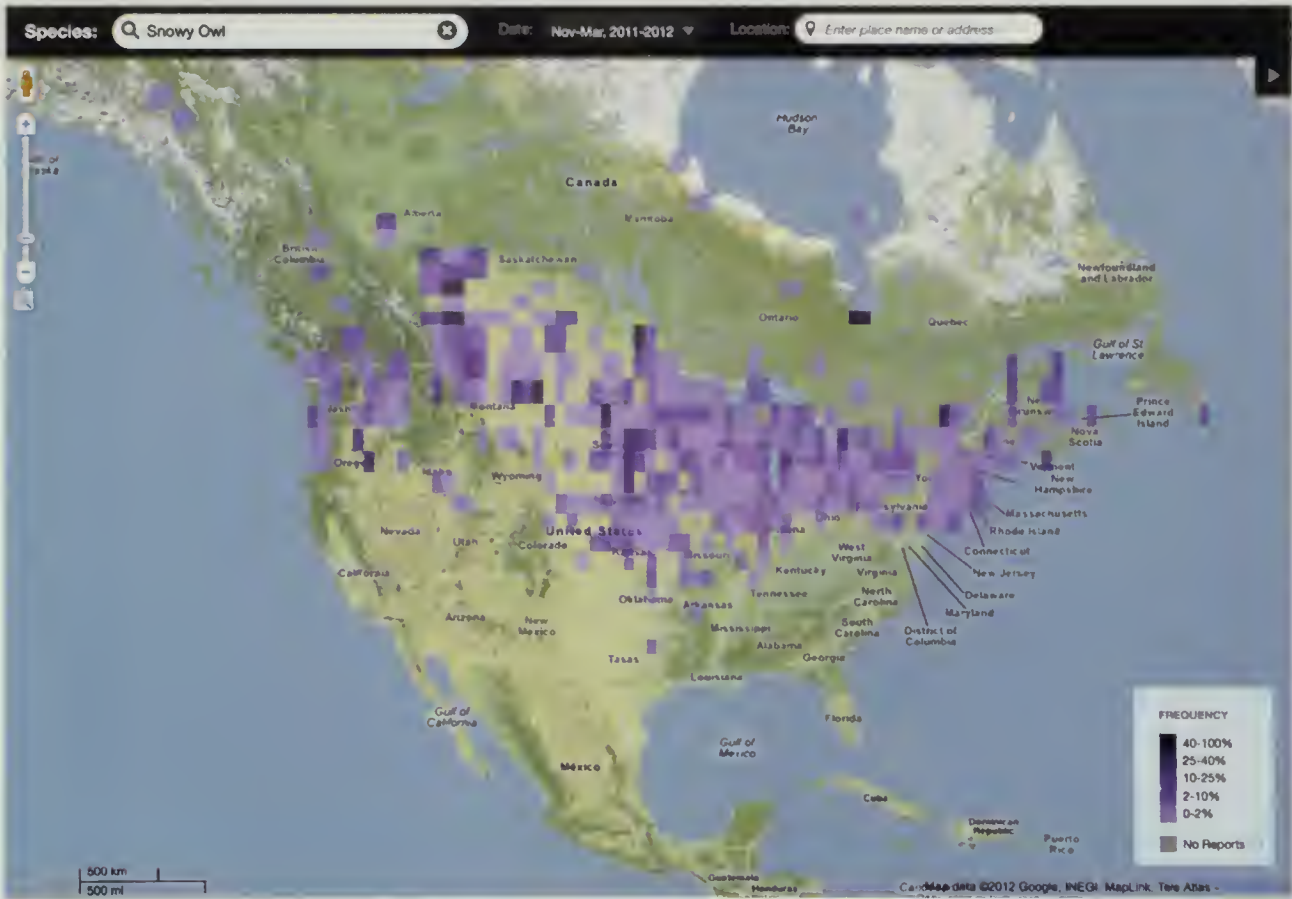


Fig. 1. Snowy Owl *Bubo scandiacus* records submitted to eBird between November 2011 and March 2012. At the broad scale, note how the records cluster in the middle of the continent, and at the fine scale note how mountainous regions are avoided completely. Tools such as eBird make it possible to quickly realise the scale of an invasion, while the database captures and archives each record. (Frequency refers to percentage of checklists reporting the species.)

visualise and explore this wealth of information generated by birders. This article uses two examples to illustrate the power of eBird to aid our understanding of biological patterns, and to alert European birders to the merits of the system.

Snowy Owl invasion 2011/12

The winter of 2011/12 was exceptional for Snowy Owls *Bubo scandiacus* in the ‘Lower 48’ United States. Snowy Owls breed across the high Arctic and winter in modest numbers south to the USA/Canada border region, and rarely farther south. By the late autumn of 2011 it was evident that something extraordinary was happening with Snowy Owls, as birds were turning up well to the south of their expected winter areas and in greater than average numbers. By gathering observations of Snowy Owls through eBird, the extent of the invasion can be readily visualised at the continental scale. Maps created using eBird data showed that the invasion was centred on the Great Lakes, upper Midwest, and Great Plains regions (fig. 1). Although the 2011/12 Snowy Owl movement is indeed continental in scope, the last

invasion, in 2008/09, was also captured by eBird and was quite different. Then, the greatest numbers were recorded in North-eastern USA, and Midwest totals were rather modest (fig. 2). Without the large-scale spatial coverage of eBird and the participation of thousands of birders throughout North America, the scope and extent of an invasion like this would be difficult to measure.

Species distribution models

By simply visualising the raw observations in eBird, biological patterns of bird distribution, seasonal movement, range expansion and contraction, and fluctuations in detectability can be revealed at scales never before possible. For example, a graph of the occurrence of Wood Thrush *Hylocichla mustelina* in New York state shows several prominent biological signals, all based on the raw data collected from birders (fig. 3).

These patterns are visible using the eBird output tools and, although powerful, they are simple data explorations. More sophisticated analysis requires accounting for the many biases inherent in the collection of observa-

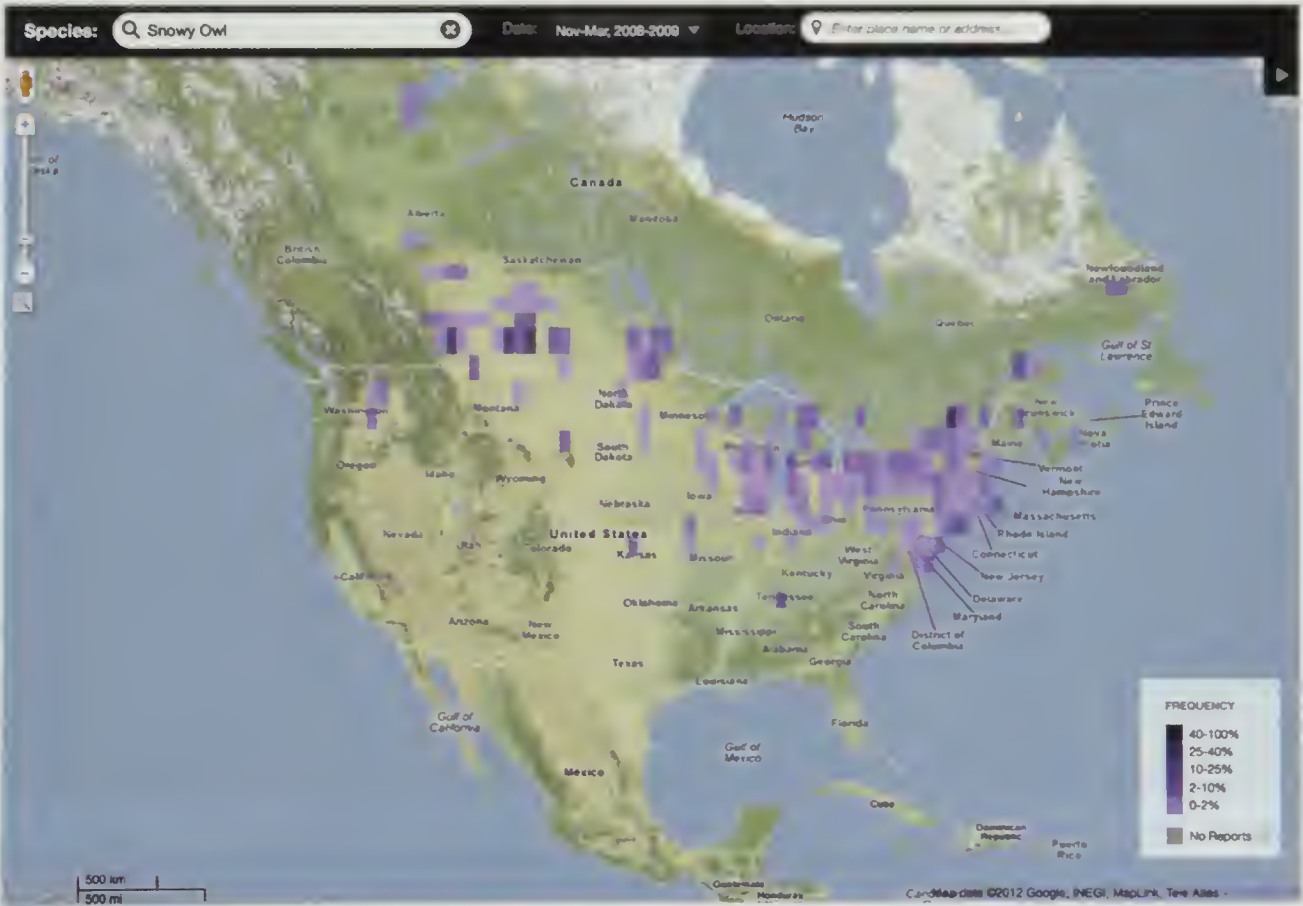


Fig. 2. Snowy Owl observations submitted to eBird between October 2008 and May 2009. When the 2008/09 and 2011/12 invasions are compared, it can be seen that the Pacific Northwest, Great Plains, and Midwest had fewer records in 2008/09 while the Northeast had more.

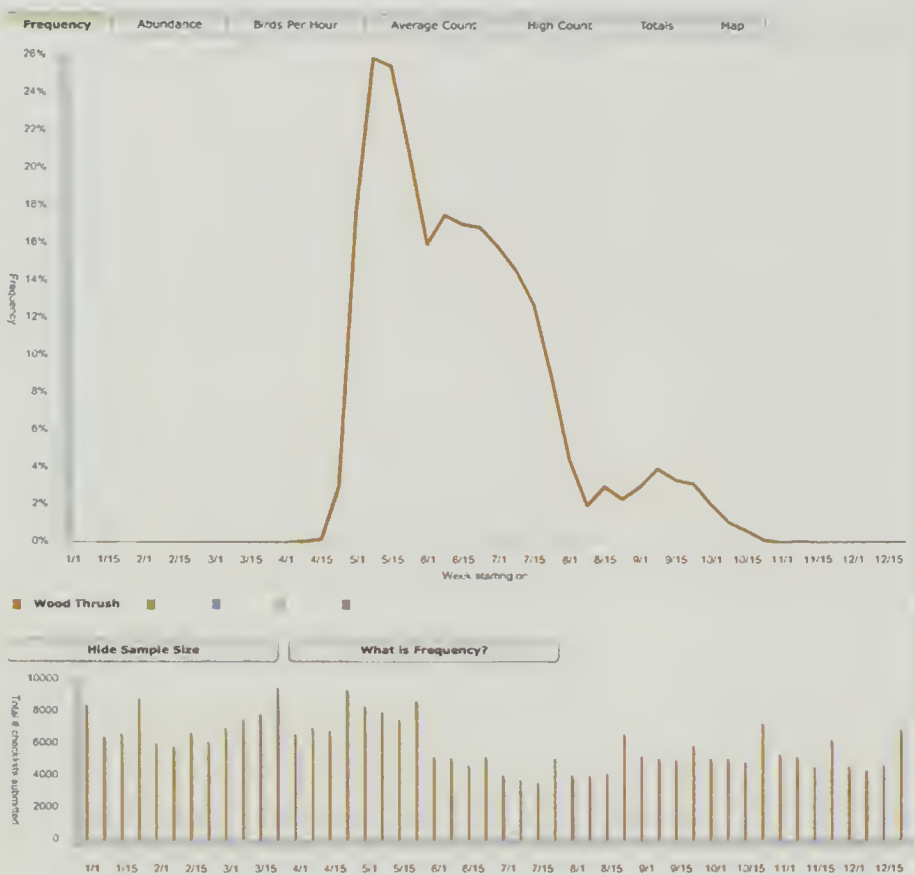


Fig. 3. Wood Thrush *Hylocichla mustelina* frequency (percentage of checklists reporting this species) for New York, USA, in spring (all available years combined). Note the sudden spring arrival, the mid-May peak indicating migration, the high occurrence as June breeders are singing and territorial, and the gradual drop off to a low point in early August. This is not due to migration, but rather a change in detectability as the birds become quiet and moult. The small autumn migration peak is evident later, in mid September, and reveals the difficulty in detecting this species during autumn migration.

tional data. Pioneering statistical analysis techniques have been developed specifically for the eBird dataset to control for this variation, which includes time of day, duration, distance covered, and how these affect the probability of detecting given species (Fink *et al.* 2010). So far limited to continental USA,

these models combine bird observations with GIS information on landscape characteristics, including habitat, human population density, and climate, to predict bird occurrence on any day of the year across the entire country. The results are the first continent-scale data-driven visualisations of bird occur-

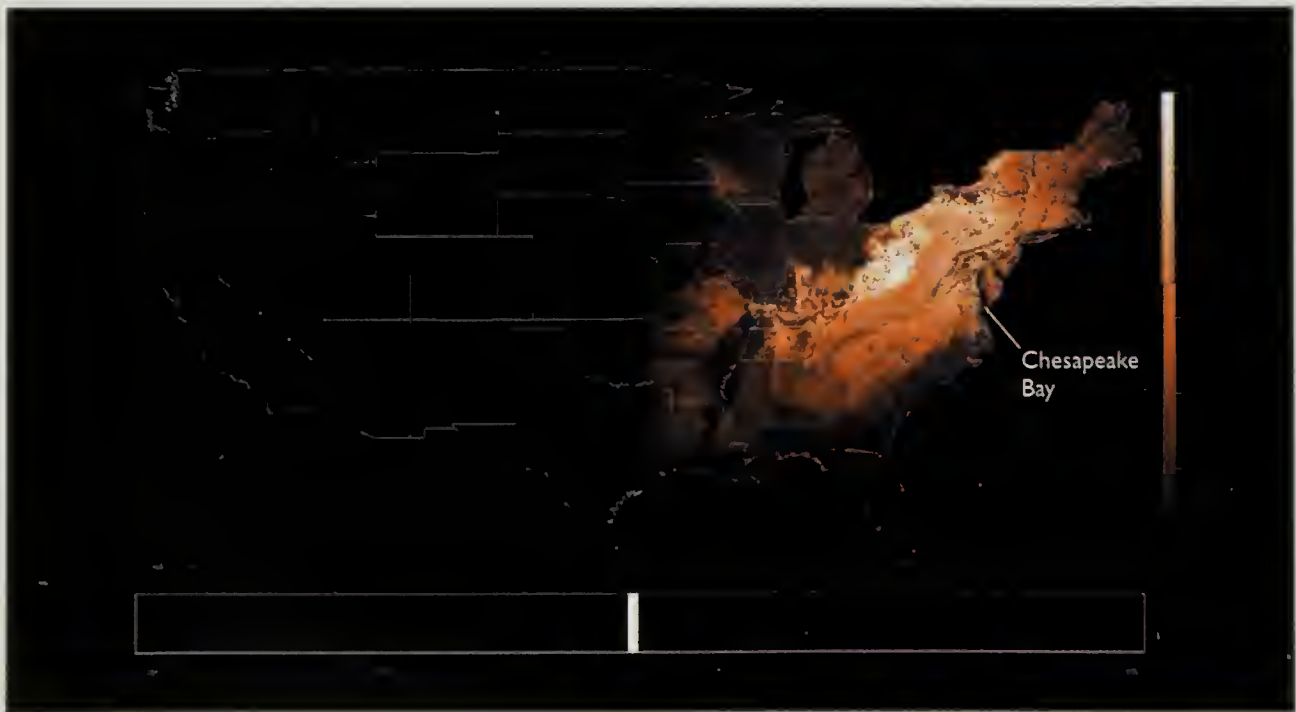


Fig. 4. The estimated Wood Thrush distribution based on eBird data for 29th June 2008. The southeastern boundary closely follows the transition from deciduous to coniferous forests, while the ridge-like folding north of Chesapeake Bay is in fact the folded structure of the Appalachian Mountains, with the dark agricultural valleys contrasting with the wooded ridgelines where Wood Thrushes are common. These patterns give confidence to these advanced modelling techniques that for the first time enable continent-scale visualisations of migration.

rence throughout the year, including the amazing patterns of large-scale bird migration. Visit <http://ebird.org/content/ebird/about/occurrence-maps> to learn more about these models. Moving forward, we hope to obtain global datasets on landscape characteristics, and to be able to provide these kinds of analyses for Central and South America as well, and in due course the rest of the world.

Conclusion

It is worth emphasising the admiration that we at the Cornell lab have for the excellent work conducted at the BTO and we recognise the BTO as the natural home for all UK bird population data. Our recent discussions with BTO staff have highlighted a shared belief in eBird's power to turn birders' records into demonstrations of patterns in biological data and we encourage all birders considering a trip

to the Americas to check out eBird. The system is an excellent resource for trip planning, as well as a way to help birders manage their observations and lists online. And there is no better way to put your observations into the hands of scientists and conservationists working to conserve birds in the Americas.

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Leadenhall Market as a historical source of rare bird specimens

Abstract Leadenhall Market, in London, was perhaps the most famous of the poulterer's markets that could be found across Britain during the nineteenth and early twentieth centuries. The scale of commercial trade in birds, chiefly wildfowl and gamebirds but including many others, at such markets was remarkable. Rare and scarce birds turned up with some regularity, whether accidentally or intentionally, and the potential for fraud was significant. This short paper distils the known evidence about the scale of trade at Leadenhall and some of the rare species known to have occurred.

Harrop *et al.* (2012) argued that fraud has been a continuous feature of ornithological recording in Britain since the early 1800s at least, and that unknown but possibly significant numbers of fraudulent claims may still remain accepted. In cases where specimen records have been rejected because of the possibility of mistake or fraud, the true source of the skin typically remains unknown. In the case of the Hastings Rarities, it was inferred that at least some of the specimens were deliberately imported for the purpose of fraud (Nicholson & Ferguson-Lees 1962; Coombes 1970). However, Harrop *et al.* (2012) also pointed to the

industrial-scale commercial trade in birds for the table and, to a lesser extent, aviculture, which led to millions of individuals being caught or killed annually. Bird-catching activities on a large scale, for example that of finches, buntings and larks in southern England, contributed (as a kind of 'bycatch') many rare specimens to the ornithological record, such as Britain's first accepted White-winged Lark *Melanocorypha leucoptera* (Yarrell 1874). The possibility exists that rare birds, genuinely killed in Britain, could have arrived at market unrecognised and without a traceable provenance, only to be identified subsequently by a dealer or potential

customer – indeed there is evidence that this may have happened (see below). Harrop *et al.* also highlighted the fact that, in addition to British-taken birds being for sale, birds were routinely brought into the country in large quantities, frozen on ice, from continental Europe, America and Asia. Hence foreign birds, rare in Britain, could potentially be picked up at a commercial market and given a fraudulent British provenance by an unscrupulous dealer or customer. The question is, to what extent did this ever really happen? Could, for example, commercially available foreign bird specimens have sustained a fraudulent operation such as the Hastings Rarities?



Leadenhall Market

During the 1800s and much of the 1900s, most cities had thriving poulterers' markets. Perhaps the most famous, certainly in the written literature, is London's Leadenhall Market. Poultry and game have been sold more or less continuously at Leadenhall since the fourteenth century (Jones 1965), and the market, rebuilt in 1881, persists to this day (now greatly diversified, with little or no poultry – see www.leadenhallmarket.co.uk). At the height of its poultry- and game-trading days, thousands of farmed and wild-taken birds were sold daily. Aside from standard poultry, these included wildfowl, gamebirds such as partridges and grouse, waders of many species including plovers, Woodcock *Scolopax rusticola* and Common Snipe *Gallinago gallinago*, passerines such as Skylarks *Alauda arvensis* and a very considerable number of non-target or less expected species that had been caught up in the trade. For example, divers, herons, grebes, raptors, skuas, gulls and even storm-petrels – none of them considered particularly edible these days – were apparently snapped up (Stevenson 1866; Bond 1870; Gatcombe 1872; Stevenson & Gurney 1872; Tuck 1872; Ogilvy 1873; Frere 1886; Macpherson 1886; Mathew 1894; Howse 1899). Partington (1835), talking



Figs. 1–3. Leadenhall Market in its heyday, in the 1800s – line-drawings from the *Illustrated London News*.

about the decline of the Avocet *Recurvirostra avosetta*, remarked that Leadenhall Market was a better place to find the birds of the English fens than the fens themselves. Charles Raven, in his 1929 reminiscences (Raven 1929), recorded that in the early years of the twentieth century it was a bustling centre for a trade in edible birds from all over Britain and the wider world. The main part of the trade was in wildfowl and followed predictable patterns, with home-sourced birds predominating in autumn, Dutch and Danish imports in March, and consignments of barrels of frozen birds from Siberia later in the spring. Among the ducks and commoner waders, the odds-and-ends boxes could turn up many more unusual species. Raven stated that an 'astonishing' number of species came into his hands. Examples of species he saw for sale include Stone-curlew *Burhinus oedipennis*, Rough-legged Buzzard *Buteo lagopus*, Spotted Redshank *Tringa erythropus*, Razor-bill *Alca torda*, divers and a Falcated Duck *Anas falcata*. Gurney (1870) wrote to alert ornithologists to the number of rare bird specimens, often in pristine condition, that could be obtained there, stating that one of the London taxidermists had a standing order on any available rarities.

Charles St John (St John 1891) provided a lively description, not only of what was on sale at Leadenhall in the early years of the nineteenth century, but also of the dealers doing the selling, the circumstances under which birds were brought into the country, and the dubious legality of some of the trade: 'But beyond all other places, Leadenhall Market is the emporium to which the purchaser of rare birds and animals, living or dead, should betake himself. There is scarcely a quadruped, from a bear to a white mouse, or a bird, from a golden eagle to a long-tailed tomtit, which cannot be found there; and not a few of the dealers in these articles are themselves curious specimens of the genus *Homo*, accustomed to deal with every description of customer, from the noble-man who wishes to add to his menagerie, or to the feathered tenants of his lake, to the organ boy who wants to purchase a dormouse or monkey. They are as shrewd as Scotchmen, and as keen bargainers as a Yorkshire horse-dealer: but although somewhat over-suspicious in making their purchases,

and sadly deficient in elegance of manner and language, they are on the whole by no means bad fellows to deal with, if care be taken not to "rub them against the grain". Singing-birds, hawks, cats with brass collars and chains, ready got up for tabby-loving spinsters, Blenheim spaniels, and wicked-looking bulldogs, pigeons, bantams, goldfish, in short every kind of bird or beast that was ever yet made a pet of is here to be bought, sold, and exchanged, and frequently the collector may obtain very rare and valuable specimens. Holland and Belgium supply great quantities of wild-fowl, canaries, carrier pigeons, &c.; and on a busy day the traffic in this division of Leadenhall Market is a most amusing sight.

'One thing which especially surprises the visitor to this market is the total defiance of the game laws which all the dealers indulge in. There is scarcely a description of game which cannot be bought here at any season, legal or illegal; and it is difficult to understand how game laws and their penalties can be so openly and systematically infringed. Pheasants and pheasants' eggs, grouse and grouse eggs, &c., &c., are undisguisedly and unblushingly sold at all seasons, in defiance of informers and magistrates. On asking how it happens that the dealers can supply game of all sorts at all seasons, you are gravely told "that it is all foreign game". Scotch grouse are called Norwegian grouse, and good English partridges and other game are libeled by being called Dutch-men or Frenchmen. It is certainly true that vast numbers of white grouse come from Norway. These birds, as well as the capercaillie, are caught or shot as opportunity offers during the winter, are subjected to the cold until they are thoroughly frozen, and are kept in that state until a full cargo is collected, or at least until a ship sails for London, Hull or some British port.'

St John's testimony with respect to the trade from Norway is supported by James Wilson (Wilson 1840), who recorded tens of thousands of Willow Grouse *Lagopus lagopus*, Ptarmigan *L. muta* and Capercaillie *Tetrao urogallus* being shipped from western Norway to British ports, where they were sold at substantial profit. One Leadenhall dealer received 15,000 Ptarmigans in a single shipment in 1840. Over 8,000 Black Grouse *T. tetrix* passed through Leadenhall in February–March 1883,

either sold there or sent to provincial markets (Gurney 1883). The unregulated nature of the trade was perhaps not an exaggeration: prior to the Game Reform Act of 1831 it is claimed that Leadenhall poulterers would have relied almost entirely on poachers for their wild-killed British stock (Osbourne 2000).

Relevance to trade in rarities

That many species of bird could turn up for sale at market is firmly established. The extent to which this affected the ornithological recording of species in Britain has not been assessed. For example, notwithstanding the promise of barrels of frozen birds from Asia, the species listed above do not represent a list of major rarities. Rarities certainly made it onto the record, perhaps legitimately, through their appearance at Leadenhall. For example, the first British (and Western Palearctic) record of American Wigeon *Anas americana* was bought there by Abraham Dee Bartlett, then Superintendent of the Zoological Gardens at Regent's Park (Blyth 1838). The first two Irish records of Snow Goose *Anser caerulescens* were also found at Leadenhall, as was a claimed South Polar Skua *Stercorarius macormicki*, thought to have originated from Great Yarmouth, Norfolk, which is under review (Bourne & Lee 1994). In all cases, the provenance reported by the dealers has to be taken on trust. In 1864 the provenance of the American Wigeon was openly doubted (Newman 1864), and it is surprising that this bird is still accepted.

Raven (1929) implied that almost any species could eventually be found dead on a stall. Frederick Stubbs (Stubbs 1913) described how many bird specimens were coming to Leadenhall (and other major game markets) from the Far East and latterly also from the Americas. He lists several Pallas's Sandgrouse *Syrhaptes paradoxus*, Baikal Teals *Anas formosa* and Falcated Ducks, a pair of Baer's Pochards *Aythya baeri*, Great Otis tarda and Little Bustards *Tetrax tetrax*, a Wandering Albatross *Diomedea exulans* (dripping blood), Eagle Owls *Bubo bubo* and Snowy Owls *B. scandiacus*, among others, at Leadenhall, as well as Waxwings *Bombycilla garrulus*, Pine Grosbeaks *Pinicola enucleator* and Common Rosefinches *Carpodacus ery-*

thrinus available in the Manchester markets. The most unusual birds appear to be incidental odd specimens parcelled up with commercial trade – for example a Red Wattlebird *Anthochaera carunculata* found in a consignment of frozen rabbits, a Blue Rock Thrush *Monticola solitarius* appearing unexpectedly in February 1881 (Gurney 1881) and a Trindade Petrel *Pterodroma arminjoniana* in December 1889 that was bought by the Brazenor brothers (taxidermists) of Brighton (Bourne 1963). Other species of potential interest to the British List included a Black Woodpecker *Dryocopus martius* in 1872, purportedly shot in Norfolk (Ogilvy 1873), a Lesser White-fronted Goose *Anser erythropus* (apparently from the Netherlands) in November 1884 (Fisher 1885) and four Baikal Teals (Tomes 1847); none of these are now accepted as being genuinely British-taken wild birds.

The honesty of dealers and suppliers would have to be queried, and opinion was divided on the matter. The ornithological elite were apparently keeping a running watch on Leadenhall and other markets from the latter years of the 1800s: John Gould (Gould 1869), in relation to another Black Woodpecker reportedly shot in Hampshire, complained that he knew of many instances of birds coming to market, given a false provenance and then being used to try to fool the unwary. Edward Newman, then editor of *The Zoologist*, countered that, as a frequent visitor to Leadenhall Market, he could vouch for the honesty of the dealers (Newman 1869). He was aware that rarities could be picked up easily at the market, and, given the ease with which they could be claimed to be British and entered into the record, noted how few claims were actually made. Another Black Woodpecker found at Leadenhall was assumed to have come from Sweden because it was contained in a batch of Capercaillies (Gurney 1869). The dealer, by contrast, said it came from Hull, though he may have been referring to the city of import – illustrating the difficulty associated with determining the provenance of market birds. In light of the degree of potential illegal activity surrounding the trade in gamebirds, both Gurney and Raven hinted that being 'in the know' with the dealers facilitated access to a

wider range of species and more information about their true origin.

Leadenhall as a potential vehicle for fraud

Largely missing from the written record of the collection of rare and scarce birds reported as found at Leadenhall are the smaller passerines – in particular the rare warblers, buntings, etc. that would have been of most interest to fraudsters trying to make money. We know that thousands of Skylarks and other passerine species were being sold (see below) and that the occasional semi-rarity, for example Richard's Pipit *Anthus richardi* (Machin 1866), was found among them but, if the Hastings Rarities were predominantly market-bought birds, they would be expected to contain proportionately many more wildfowl and many fewer passerines than was in fact the case (Nicholson & Ferguson-Lees 1962). This is consistent with the assertion that large numbers of passerines were imported directly to the taxidermist George Bristow (Coombes 1970). There are some instances of Hastings Rarities that are more consistent with an origin in mainstream commercial trade. These include an extraordinary series of three Pacific Golden Plovers *Pluvialis fulva* reportedly shot (and 2–3 more seen) at Wartling Marsh, Sussex, on 23rd April 1914, followed by another seven or more shot at Romney Marsh, Kent, on 20th September 1915. A Pacific Golden Plover had been previously found at Leadenhall in 1874, supposedly from Norfolk (Witherby *et al.* 1940). The alleged arrivals of multiple Pine Grosbeaks reported among the Hastings Rarities are notable in light of the note by Gurney that many were captured in Russia alongside Waxwings, and sent to market on ice (Gurney 1883). Probably this is why Saunders (1899) dismissed the provenance of most of the 40 British occurrences of Pine Grosbeak prior to 1883.

Only once, apparently, were Hastings records explicitly linked at the time with Leadenhall stock – Saunders (1907), commenting on the flocks of Black Larks *Melanocorypha yeltoniensis* reported from Pevensy Levels and Lydd (Kent) in January and February of 1907 (all now rejected), stated that he 'had heard that many "from the

continent" were on sale in Leadenhall Market.' Of course, this could equally point to a genuine massive irruption into Europe as to a commercial source for Bristow's specimens, yet no Black Larks were recorded by ornithologists elsewhere in Europe that year. Saunders's comment does, however, suggest that other potentially interesting species were periodically on sale, but not always recorded. How much slipped through the net? Interesting in this regard is David Bannerman's report that he bought a White-tailed Eagle *Haliaeetus albicilla* 'said to have been shot in Scotland' at Leadenhall on 9th November 1903 (Bannerman 1903). Not only had the then editor of *The Zoologist*, William Distant, also seen the same bird for sale, but the bird had been independently found and reported (erroneously, as a Golden Eagle *Aquila chrysaetos*) in another magazine. Clearly, by the early 1900s the market was receiving saturation coverage by passing ornithologists. The note that it was 'said to' have been shot in Scotland also shows that they did not take the provenance described by dealers at face value.

The local taxidermists were on the case too. The Brazenor brothers of Brighton (see above) are mentioned – in particular they set up several birds from a consignment of 100 Waxwings sent from Russia in 1883 (Gurney 1883). John Cooper, a taxidermist from Radnor Street, bought an Upland Sandpiper *Bartramia longicauda* at Leadenhall on 27th October 1880, hanging among some European Golden Plovers *Pluvialis apricaria*, which, he was told, had come from Lincolnshire (Harting 1880). He took it to James Harting (then editor of *The Zoologist*) for examination. Harting first tried, unsuccessfully, to determine whether the golden plovers had been imported American Golden Plovers *P. dominica*. He then tried to get more information about their provenance, but the dealer was evasive. Subsequently, Harting took samples of beetle remains from the stomach of the bird and sent them off to beetle expert E. C. Rye to determine whether they were British or American. Rye's reply was equivocal because of the fragmented state of the samples, but he saw nothing to suggest that they were not British. Having satisfied himself that the bird was probably

British, Harting published the record, but it was subsequently square-bracketed (Blathwayt 1912) and is no longer accepted. Certainly Harting and, as seen above, other ornithologists, took Leadenhall seriously, but also saw the need to double-check the information supplied about the birds found there. It is also clear that a taxidermist with less integrity than John Cooper could have invented a new provenance for the Upland Sandpiper, and sold it to a collector for profit.

Finally, what is also largely missing from

the written record of birds found at Leadenhall Market is the f-word: 'fraud'. For all the contemporary authorities who documented, directly or indirectly, their suspicions, direct accusations of fraud remain rare, but not totally absent. Montagu Brown, discussing the vertebrate fauna of Leicestershire (Brown 1886), notes two Eurasian Bitterns *Botaurus stellaris* said to have been shot near Lutterworth, with the comment: 'I have since had reason to believe, however, that this was a fraud, and that the birds were purchased in Leadenhall Market.' It seems that Brown was one of the few, among the people who suspected what was going on, to break ranks and speak out.

Conclusions

The ornithological establishment was aware of the commercial trade in large numbers of species coming into Leadenhall and other major poulterers' markets during the nineteenth and early twentieth centuries. In addition to birds sourced from Britain and Ireland, the accounts above unambiguously

Roger Riddington



Roger Riddington



Roger Riddington

185–187. Modern-day Leadenhall Market, including the nearest thing to a poulterer that today's visitor will find; March 2012.

establish that frozen birds were also being imported commercially into Britain from Europe, Asia and America. Rare and scarce birds turned up with enough regularity for the market to warrant regular visits from local ornithologists. Whereas rarities on sale might well have been shot in Britain, the dealers concerned were sometimes evasive about their true provenance, perhaps because of an undercurrent of illegal trade. Birds coming in frozen from abroad may have 'acquired' a false British provenance in the hands of the poulterer or customer, and contemporary ornithologists knew that. How often this actually happened is impossible to assess, but it is clear that rare and other interesting birds were available for the potential fraudster. Surveillance of the market was such, however, that any large-scale rarity fraud based on commercial sources of specimens is likely to have been spotted. However, individuals who were able to keep their fraudulent activities on a smaller scale, away from the attention of the ornithological elite, might well have got away with it.

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Alcids breeding in brackish water, and a historical record of Black Guillemot and Razorbill breeding in a freshwater habitat

Greenwood (2012) recorded Black Guillemots *Cephus grylle* breeding in brackish-water habitat on the River Lagan in Northern Ireland. He noted that such behaviour has not been recorded previously from Britain & Ireland, and also that Black Guillemots breed in the brackish water of the Baltic Sea. While this statement is correct, a couple of additional comments are in order.

First, two other alcids breed fairly commonly along the coasts of the Baltic Sea: the Razorbill *Alca torda* and the Common Guillemot *Uria aalge*. Consequently, the Black Guillemot is not the only auk to have adapted successfully to brackish-water habitats.

Second, Greenwood noted that these Baltic Sea alcid populations have traditionally been considered 'relicts'; however, the evidence for such relict status seems to be inconclusive. I am not aware of any large-scale comparative population genetic studies of Black Guillemots, but in both Common Guillemots and Razorbills, molecular studies have shown that the Baltic Sea populations are poorly differentiated from those in adjacent parts of the Atlantic proper; this suggests that a non-trivial amount of gene flow still takes place (Moum & Árnason 2001; Riffaut *et al.* 2005). Additionally, Baltic Common Guillemots at least are morphologically virtually indistinguishable from Common Guillemots breeding in the northeast Atlantic (Peterz & Blomqvist 2010).

Third, there is at least one historical eyewitness report from the Western Palearctic of two auk species (presumably) breeding at a true freshwater habitat; specifically, in the largest freshwater lake in Europe, Lake Ladoga in Russia (Hildén 1921). In May–June 1920, the Finnish ornithologist Ilmari Hildén visited some small islands in the north-western parts of Lake Ladoga, which was then part of Finland. On one of these islands he observed several Black Guillemots and Razorbills in circumstances that, in his

opinion, strongly suggested that they were nesting. Hildén did not claim to have actually seen any eggs or young, but he was informed by local people that both species did indeed breed in the area (if only sparsely), and that military personnel engaged in fortifying some nearby islands had routinely collected their eggs. In his report, Hildén suspected that ever-increasing human encroachment on the auks' nesting island would soon lead to their extinction from Lake Ladoga. A more recent Russian report (Anon. 2001) suggested that the Black Guillemot and Razorbill had indeed disappeared from Lake Ladoga as breeding birds by the 1930s.

The possible former presence of breeding alcids in at least one freshwater locality and their definitive presence in a major brackish-water locality (i.e. the Baltic Sea) suggest that the potential for adapting to such habitats is part of the general ecological repertoire of the Black Guillemot (and at least a few other species of auks). The de facto absence of alcids from most fresh- and brackish-water ecosystems in the Northern Hemisphere is probably not entirely due to low salinity.

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Note

Reed Warbler with white tips to tail feathers

During late April and early May 2010, almost 2,000 Reed Warblers *Acrocephalus scirpaceus* were caught at the Aiguamolls de l'Empordà Natural Park in Girona, northeast Spain, as part of Institut Català d'Ornitologia's spring-migration ringing campaign. These included local breeding birds as well as migrants; a small number of birds previously ringed, some originating from as far away as Slovenia, were controlled. The wing length and weight of the birds caught were recorded and, because migrants were on the move, were rather variable. Plumage, on the other hand, differed little between individuals, and slight differences noted appeared to be due mostly to the effects of wear and bleaching of the feathers, with some birds appearing considerably fresher than others.

On 8th May 2010, however, a bird was caught with obvious white tips to the rectrices; these were broad and well marked on R6–R2, but considerably thinner and confined to the extreme feather tip on R1 (the innermost tail feather; plate 188). The white on R5 and R6 extended down the inner web, forming a well-defined fringe (plate 189).

While a pale feather fringe to the rectrices was typical on many Reed Warblers examined during the same period, this was invariably diffuse, narrow and seldom prominent (plates 190 & 191).

Pearson *et al.* (2002) stated that fresh-plumaged *scirpaceus* may show pale buffy-brown tips to the rectrices, although these 'tend to be narrower and less well defined than on *fuscus*'. However, as previously noted by Votier & Riddington (2005), very occasionally an autumn *scirpaceus* may show a tail-feather pattern that could overlap in appearance with that of some *fuscus*. The bird discussed here appeared even more striking than the worn autumn adult birds discussed by Votier & Riddington; though how this bird would appear in autumn following wear and bleaching over the summer is unknown.

In addition, the bird showed narrow but rather clean white tips to the primaries; these were by no means as striking and noticeable as the tail pattern, but again perhaps more suggestive of *fuscus* than *scirpaceus*. However, the remainder of the bird's plumage was entirely typical of *scirpaceus* (plate 192),



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188. Adult Reed Warbler *Acrocephalus s. scirpaceus*, with atypical white tips to the rectrices. Aiguamolls de l'Empordà Natural Park, Girona, Catalonia, Spain, 8th May 2010.



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189. Adult Reed Warbler *Acrocephalus s. scirpaceus*. Note the extent of white along the inner webs of R5–6. Aiguamolls de l'Empordà Natural Park, Girona, Catalonia, Spain, 8th May 2010.

Stephen Menzie



190. Reed Warbler *Acrocephalus s. scirpaceus*, with a typical tail pattern. Aiguamolls de l'Empordà Natural Park, Girona, Catalonia, Spain, 8th May 2010.

Stephen Menzie



192. Adult Reed Warbler *Acrocephalus s. scirpaceus*, showing overall plumage tones typical of western European birds. Note also how conspicuous the tail-tip pattern remains even when the bird is in a natural pose. Aiguamolls de l'Empordà Natural Park, Girona, Catalonia, Spain, 8th May 2010.

lacking the paler, colder tones of 'typical *fuscus*' but could match that of a 'warmer *fuscus*' (Pearson *et al.* 2002; Kennerley & Pearson 2010). With a wing length of 64.5 mm, the bird was at the smaller end of the range of birds caught during the spring campaign. Moreover, the bird was carrying

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191. Reed Warbler *Acrocephalus s. scirpaceus*, with a rather well-marked tail pattern, but still within the expected variation for nominate *scirpaceus*. Aiguamolls de l'Empordà Natural Park, Girona, Catalonia, Spain, 8th May 2010.

a Spanish ring, and had been ringed as a juvenile at Aiguamolls in August 2007. Thus, there seems little doubt that this bird was a European-bred *scirpaceus*.

While the presence of such broad and well-defined white tail-feather tips on a Reed Warbler in Europe in spring is likely to generate interest and might even raise the suggestion of an out-of-range *fuscus*, the possibility of an extreme or atypical *scirpaceus* must be kept in mind. Indeed, a tail pattern such as that shown by this bird may even fall beyond the expected variation shown by *fuscus* (Yoav Perlman and Itai Shanni pers. comm.). It seems that nominate *scirpaceus* breeding in western Europe can show a tail pattern well outside the range of that previously described, albeit extremely rarely.

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Reviews



Handbook of the Birds of the World. Vol. 16. Tanagers to New World Blackbirds

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Lynx Edicions, 2011

Hbk, 893pp, 77 colour plates, 496 photographs, 766 distribution maps
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For me, one of the most memorable birding moments of the

early 1990s was the realisation that *HBW* was going to be the ultimate bird book in the world – in fact the ‘book’ that you would keep if all others had to go. Many of us had wanted such a thing, but little did we expect an unknown publishing house to deliver this product – and now the doubters are looking rather silly. *HBW* is the first work ever to illustrate and deal in detail with all the living species of bird in the world. Over the 16 volumes, *HBW* has brought in over 200 specialist writers to publish 12,555 pages and describe 9,903 species, supported by 1,030 plates created by over 30 artists, together with over 1,000 photographers who contributed some 6,644 photographs!

The quality has remained high throughout and this latest volume concludes all of the bird families in the world. This is also the last of the nine passerine volumes and (as in the case of the last non-passerine volume) it comes with a practical plastic-coated reference card. This is designed to act as an index to all of the families covered in these nine volumes, enabling readers to locate any of the families in this second part of the series.

Taxonomically, this volume is potentially one of the most interesting because the families featured have been the subject of disagreement for many decades. The latest molecular analyses clearly indicate that traditional classifications have placed several groups of species in the wrong families. That said, *HBW* has generally taken a conservative approach, placing species into families where birders would traditionally expect to find them. As a consequence, there are a number of species in this volume that many people feel should be treated differently, and the Emberizidae would look very different had the IOC approach been taken. Within the Thraupidae there are many species that research has shown should have been included in the earlier volumes. This is inevitable unless research is to stand still, and Lynx has plans

for an online solution. So to devalue the project on this aspect would be wrong given the really high quality of the production.

The families featured here are Tanagers (Thraupidae, 283 species), Cardinals (Cardinalidae, 42 species), Buntings and New World Sparrows (Emberizidae, 326 species) and New World Blackbirds (Icteridae, 111 species). Each of these benefits from an extensive chapter explaining the family’s traits, and these have been written by Steven Hilty, Ronald Orenstein, James Rising and Rosendo Fraga respectively, with additional input on the species accounts by David Brewer, Alvaro Jaramillo, José Luis Copete, Steve Madge and Peter Ryan.

Many people follow *HBW*’s taxonomy and for them the various splits are the most important aspect of the book – so they will be interested in the decision to recognise three new species split from the ‘old’ Savannah Sparrow *Passerculus sandwichensis*. These are Belding’s Sparrow *P. guttatus*, Large-billed Sparrow *P. rostratus* and San Benito Sparrow *P. sanctorum*. Also newly recognised are four forms of what has traditionally been known as Fox Sparrow (the nominate race becomes Red Fox-sparrow *Passerella iliaca*, and the splits are Slate-coloured *P. schistacea*, Thick-billed *P. megarhyncha* and Sooty Fox-sparrow *P. unalaschcensis*).

Other splits I recorded (with the original species often adopting a new name) are: Lilian’s Meadowlark *Sturnella lilianae* (split from Eastern Meadowlark *S. magna*), Pale Baywing *Agelaioides fringillarius* (from Greyish Baywing *A. badius*), Bronze-brown Cowbird *Molothrus arimenti* (from Bronzed Cowbird *M. aeneus*), Moriche Oriole *Icterus chryscephalus* (from Epaulet Oriole *I. cayanensis*), Fuertes’s Oriole *Icterus fuertesi* (from Orchard Oriole *I. spurius*), Amazonian Oropendola *Psarocolius yuracares* (from Para Oropendola *P. bifasciatus*), Scarlet-rumped Cacique *Cacicus microrhynchus* (from Subtropical Cacique *C. uropygialis*), Northern Mountain Cacique *Cacicus leucoramphus* (from Southern Mountain Cacique

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These chapters are huge in their own right – that for the Cardinalidae runs to over 41,000 words, with 89 photographs, for example. This is a lot of text for just 42 species! Each family chapter has sections on systematics, morphological aspects, habitat, general habits, voice, food and feeding, breeding, movements, relationship with man, status and conservation and general bibliography. The plates are accompanied by species texts, which generally run to around 1,500 words, with

information on names (alternatives are given, as well as French, German and Spanish names), taxonomy, subspecies and distribution and descriptive notes, plus specific information on the more general topics covered in the main family chapter. Each species has a colour distribution map.

Each of the past volumes has featured an essay on a specific issue, and in this last volume the editors invited Anders Pape Møller to give an overview of the ways that climate change is affecting birds. This is a young science and amazingly the first paper to address its affect on birds appeared only in 1991, while almost 300 papers on the subject were published in 2010 alone! Having explained the effects of climate change – such as altering birds' migration dates, distribution and nesting season – this chapter looks at the conservation challenges that are created by it.

If you thought you had finally bought your last volume of *HBW*, you need to think again. Plans are underway for an additional volume providing a comprehensive index to the entire series by both scientific and English names for all taxa. This will also feature all of the 55 species described after the closing dates of their respective volumes. Beyond that there are plans to make the whole series available online on a subscription basis. That will present the perfect opportunity for Lynx to reshuffle the pack and present all the birds of the world in an order that can change every year. Everyone involved in the project should feel proud of what they have achieved.

Keith Betton



Extinct Birds

By Julian P. Hume and Michael Walters

Poyser, 2012

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Which of us has not been fascinated at some time or another by stories of extinct

birds? Who has never wondered what it would have been like to see a Moa *Dinornis* sp., or fantasised about finding a Great Auk *Pinguinus impennis*? Much has been written on the subject of bird extinctions and much, much more on species teetering on (or creeping ever closer to) the brink of extinction. But while it has sometimes been

possible to find out a great deal about some lost birds (the Great Auk is a case in point), it has been a lot less easy to track down others or to get a modern, comprehensive overview of the whole subject. This is not to denigrate Errol Fuller's *Extinct Birds* (OUP, 2000), which is very good, but in his own words, in the foreword to the present work, it is 'something of a romantic ramble through the subject' and somewhat incomplete. James Greenway Jr's excellent *Extinct and Vanishing Birds of the World* has long been a standard

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work, but it too falls a little short – not least because it is now more than 40 years old.

Julian Hume and Michael Walters have stepped into the breach and more than filled it with what I can only describe as a superb work of ornithological scholarship which will surely become the standard point of first reference for years to come. They have broken new ground in going back 700 years, rather than the 400 or so of earlier authors, and by including sub-fossil remains. Another important consideration is that they have moved beyond species and considered subspecies too, so that their statistics refer to taxa rather than species alone – you need not venture far into the text to find ample justification for this treatment. This is perhaps the point to quote the authors on their sources – which they describe, *inter alia*, as ‘sometimes spectacularly confused literature’. All praise to them for doing so well; the reference list runs to 69 pages!

The major part of the book covers nearly 500 taxa, the main contributors to the long, sad list being ducks and geese (Anatidae, 29 taxa), rails and their allies (Rallidae, 63), pigeons and doves (Columbidae, 50) and parrots and their ilk (Psittacidae, 33). The individual accounts vary in detail, depending on what is known – in some cases it is not much. There are succinct summaries for the well-known cases, for example the Dodo *Raphus cucullatus*, the Great Auk and the Passenger Pigeon *Ectopistes migratorius*, and enough on many other species to keep you interested for hours on end. For instance, have you ever heard of the Consumed Megapode *Megapodius alimentum* (which was apparently just that), or the gigantic Haast’s Eagle *Harpagornis moorei*, by far the largest eagle ever? The unfortunate Wake Island Rail *Gallinallus wakensis* is here too – probably also eaten into extinction by starving Japanese troops during World War 2. A second, much shorter section discusses 40 ‘hypothetical birds’; species which are known from a unique type or just a few specimens, or from accounts or illustrations of doubtful validity. Seven taxa of birds of paradise (Paradisaeidae) are good examples. Some of these may be valid, others not.

The book concludes with three fascinating appendices. Appendix 1, covering 30 ‘data deficient’ taxa, is self-explanatory. These are birds which are ‘difficult’ to assess for various reasons (skulking, nocturnal, occupying remote areas, etc.), and which may or may not be extant. Not surprisingly, perhaps, five are owls (Strigidae) and four are nightjars (Caprimulgidae). The list also includes the famously elusive Red Sea Swallow

Petrochelidon perdita. Appendix 2 is an annotated list of 470 taxa which are considered ‘doubtful and invalid’. This is where their existence is down to hearsay, inadequate descriptions and illustrations, lost specimens and what are clearly errors of identification. Nonetheless, we are reminded that some of these accounts might just provide authentic evidence of a genuine lost species. No fewer than 113 parrots are listed here, together with 90 hummingbirds (Trochilidae). Another bird which appears is Cox’s Sandpiper *Calidris paramelanotos*, which intrigued many of us back in the 1980s until its hybrid identity was established. I was also intrigued by the mysterious European White Eagle *Aquila alba*, reputedly seen in the Alps and the Rhine area in the eighteenth century; and slightly disappointed that the wonderfully named Bastard King Parrot *Aprosmictus insignissimus* is a ‘doubtful taxon’. It would have been even better to have been able to tick The Conure That Never Was *Pyrrhura beryllina*.

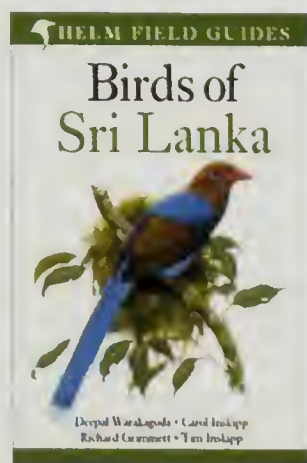
The remarkable scope of this comprehensive account ends at Appendix 3, which deals with rediscovered taxa, listing 35 found prior to 1990 and giving details for 62 found subsequently. There is hope, perhaps, for some of the birds in this final section, as we have to continue to believe that there must be for a great many more which are surely candidates for future revisions of this book. It remains very sad, however, that so much of *Extinct Birds* is about what has been irretrievably lost and, as the authors point out strongly and with deep feeling, that so much has been down to the mistakes of *Homo sapiens* – some accidental or unintentional, but others quite the reverse. The well-known histories of island endemics alone show how catastrophic some of these mistakes have been. I hope that this very fine book will not only stand as a major work of reference, but also serve to remind us that a great deal remains to be done, not least in filling the many gaps in our present knowledge.

Mike Everett

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Birds of Sri Lanka

By Deepal Warakagoda, Carol Inskipp, Tim Inskipp and Richard Grimmett

Christopher Helm, London

Pbk, 224pp; 72 colour plates

ISBN 978-0-7136-8853-5 Subbuteo code M20611

£24.99 **BB Bookshop price £22.49**

Sri Lanka's tourist industry is undergoing something of a renaissance. With the civil

war behind it and the tragic loss of life and destruction caused by the Boxing Day tsunami becoming a distant memory, tourists are flocking to this tropical island in search of a bargain. Birders are joining them in increasing numbers and Sri Lanka has now become one of the most popular birding destinations in tropical Asia. This isn't surprising when you look at what is on offer: modern hotels, good roads, excellent food and a superb range of breeding birds and winter visitors, including 27 endemic species (or up to 33 depending on the taxonomy adopted). The recent discovery of a new owl, Serendib Scops Owl *Otus thilohoffmanni*, by Deepal Warakagoda has also done much to boost the island's profile.

In recent years most birders have used John Harrison's *Field Guide to the Birds of Sri Lanka*, although my personal favourite has always been G. M. Henry's somewhat dated *A Guide to the Birds of Ceylon*, which includes a more extensive text but illustrations of somewhat dubious quality. With the publication of this new pocket-sized guide, visitors have a new tool to add to their armoury. For those unfamiliar with this series, it is an offshoot from the excellent *Birds of the Indian Subcontinent* by Grimmett, Inskipp and Inskipp, but with some updated illustrations and new text. Sri Lankan ornithologist Deepal Warakagoda brings a wealth of information to this guide, and he has added much to the introductory chapters and species accounts from his personal experience. In particular, the maps illustrate much of the new distribution data that has emerged in recent years, and are the best available.

A series of introductory chapters set the scene, providing a guide to the use of the book and an introduction to Sri Lanka's birdlife. Of particular interest is a comprehensive section on Bird-watching Areas together with a map, providing a quick reference for route planning and species possibilities. Traditionally birders have concentrated on sites in the south of the country, largely

because most of the endemics are confined to the Wet Zone of the southwest, but also because access to much of the north was restricted during the civil war. This has now changed and birders are exploring new sites and more are likely to be added to this list as interest grows. For example, the Vankalai Sanctuary near Mannar is now accessible and holds vast numbers of waders including Crab-plover *Dromas ardeola* and Great Knot *Calidris tenuirostris*, species absent from the south.

Readers who struggled with the family sequence in the original *Birds of the Indian Subcontinent* (Grimmett *et al.* 1998, 1999) will be relieved to learn that species order returns to a familiar arrangement, although the addition of plate numbers in the Family Summaries section would have been helpful. Each of the regularly occurring 450+ species are illustrated in colour and described in the adjacent plate caption. A distribution map is included for each species, showing breeding and winter ranges set against a grey-scale relief background of hills and lowlands. For pelagic species, offshore distributions are included. Vagrants are treated together in an appendix, each with a thumbnail colour illustration and brief text. The authors recognise 27 endemic species, six less than Rasmussen and Anderton acknowledge in *Birds of South Asia*, although these six are indicated by parentheses within the scientific name.

Most of the images are taken from *Birds of the Indian Subcontinent*, although a handful of plates have been repainted. For example, two new plates illustrate the owls and include the Serendib Scops Owl, a species that had yet to be discovered when *Birds of the Indian Subcontinent* first appeared in 1998. Other new plates include cuckoos, bulbuls, flowerpeckers and sunbirds, and ioras and leaf-birds, the latter including Marshall's Iora *Aegithina nigrolutea*, only recently discovered on the island but now found to be a localised breeding resident. Of the older images, it is disappointing that some appear to have been scanned at low resolution. This is particularly obvious on, for example, plate 56 where the swallows appear 40% larger than in *Birds of the Indian Subcontinent*, giving each bird a jagged outline. Given the technology that is now

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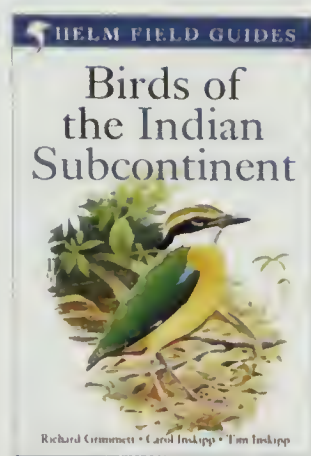


available, there are few excuses for this level of quality, and it is hoped that Helm will address this issue.

This book will appeal to anyone with an interest in Sri Lanka's birds, and is a must if you

are travelling to this delightful island. I won't be giving up my copy of *Henry* just yet, but my baggage just got heavier.

Peter Kennerley



Birds of the Indian Subcontinent

By Richard Grimmett, Carol Inskipp and Tim Inskipp

Helm Field Guides, 2011

Pbk, 528pp, 226 colour plates

ISBN 978-1-4081-2763-6 Subbuteo code M21129

£35.00 **BB Bookshop price £30.00**

The Indian subcontinent, always exciting for visitors, is no less exciting for birders.

Since publication of

these authors' handbook to the region in 1998 (and the pocket guide derived from it in 1999, both published by Helm), the discovery of Serendib Scops Owl *Otus thilohoffmanni* in Sri Lanka and Bugun Liocichla *Liocichla bugunorum* in Arunachal Pradesh have fired the imagination and added to the area's allure. Between these far-flung extremities, over 1,300 species have been recorded within the countries covered: India, Pakistan, Nepal, Bhutan, Bangladesh, Sri Lanka and the Maldives. Many interesting taxa have been elevated to species level with probably more soon to follow. In addition, our ever-increasing knowledge of identification, behaviour and distribution all amply justify a new and revised edition.

Birders will, however, be understandably wary of yet another Helm guide to the region. A series of regional guides to the subcontinent, published since the pocket guide, added nothing to the original volume. There is no excuse for such lazy publishing and with a number of other field guides now on the market, the visiting birder has a choice of which to take. To regain its former pre-eminent position among these, this new edition will have required much work.

With 528 pages to the pocket guide's 384, the extra space is both welcome and well used. The commonly encountered starlings and mynas, for example, are now displayed over three plates rather than two cramped ones. This has also enabled the distribution maps to be placed alongside the species accounts whereas before they were often annoyingly distant. Many species have been repainted for this edition and the maps revised, both being enlarged and largely for the better. The

species accounts too have been largely rewritten, the identification section comparing similar species – often a great improvement on the brief texts of the pocket guide (where separating Grasshopper Warbler *Locustella naevia* and Pallas's Grasshopper Warbler *L. certhiola* was covered in two lines without mentioning tertials!). I would have liked to see more information in the habitat and habits section, often a good clue to identification, but this is invariably very brief. Altitudinal range could have been included for montane birds, the Himalayan avifauna being a major component. It is included for the very similar Green-crowned *Seicercus burkii* and Whistler's Warblers *S. whistleri*, which are separated by altitude, in the breeding season at least, and thus is useful in identifying them. Field users will also be relieved to find that the families appear in a modern yet orthodox order, the taxonomy adopted by the pocket guide being too unfamiliar to allow easy use.

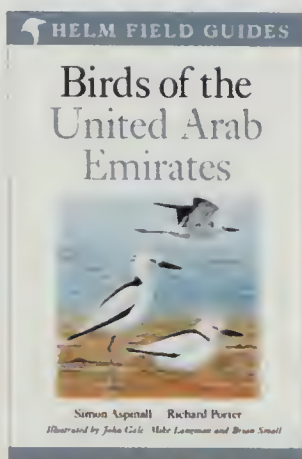
Much as the original books were a vast improvement on anything that was available before, so it is with this guide. The authors' and artists' additional and welcome hard work has resulted in better plates, text and maps incorporating all known and possible splits and much other new information, rendering this single volume pretty much indispensable to a birder travelling in the subcontinent.

Richard Schofield

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Birds of the United Arab Emirates

By Simon Aspinall and Richard Porter

Christopher Helm, 2011

Pbk, 240pp, 102 colour plates, maps

ISBN 978-1-4081-5257-7 Subbuteo code M21047

£24.99 **BB Bookshop price £22.49**

It is no secret that *Birds of the United Arab Emirates* is closely modelled on the second edition of *Birds of the*

Middle East, written by the same authors (see *Brit. Birds* 103: 737–738). The new volume, containing two-thirds the number of pages of the original, is now the ideal size for anyone with a few days to spend in the UAE (or elsewhere in the Arabian Peninsula). It is undoubtedly also a valuable reference for resident birdwatchers and longer-term visitors, being enhanced with useful, country-specific information. This is achieved in part by the addition of a status code and the redrawn maps, to show the status of each species within the UAE.

The removal of species (from *Birds of the Middle East*) that have not occurred in the UAE makes for a smaller, lighter book, and the ‘casualties’ of the slimming process generally do not diminish the new book’s worth. The shedding of four pages of gamebirds, for example, makes perfect sense, relegating the likes of Helmeted Guineafowl *Numida meleagris* to the ‘miscellaneous escapes’ section (although it does occur in a natural state in nearby areas of Yemen and Saudi Arabia) and removing alpine species unlikely to reach the UAE in a wild state. One minor disappointment was the omission of Swinhoe’s Storm-petrel *Oceanodroma monorhis*, a species recorded regularly during pelagics into the Gulf of Oman from Muscat, and noted on five occasions during various UAE-based pelagics in August and September 2011. Larophiles will be relieved to

find that the excellent comparison plate and table for large white-headed gulls is retained in full.

One criticism of the plates in *Birds of the Middle East* was that they were slightly over-saturated, rendering feather detail difficult to discern, particularly on darker and more colourful species. The reproduction in *Birds of the United Arab Emirates* is a shade lighter, in my copy at least; plates featuring buntings, non-native weavers and many of the waders are among the most noticeable beneficiaries of this improvement. The plates themselves have not been redrawn, so the rather strange-looking streaked *Acrocephalus* warblers, the pelagic terns and one or two other peculiarities remain, though they hardly detract from the book’s value. Indeed, it is very difficult to think of a country of similar size and population whose avifauna has been treated so thoroughly in a field guide.

Simon Aspinall died shortly after publication of this guide (see *Brit. Birds* 105: 98–99). Simon dedicated half of his adult life to the birds, conservation and ecology of the UAE, and this book is a fitting tribute, illuminating as it does the avian riches of the country to birdwatchers and conservationists alike.

Nick Moran

Footnote: This is not the first book bearing this title. While focusing on status and distribution rather than identification, *The Birds of the United Arab Emirates* by Colin Richardson (Hobby Publications, 1990) provided an important foundation for much of the subsequent literature about the country’s avifauna.

Identification Guide to the Birds of Britain and Northern Europe

By Peter Goodfellow; John Beaufoy, 2012;

pbk, 160pp, many colour plates and maps;

ISBN 978-1-906780-59-3;

Subbuteo code M21212

£9.99 **BB Bookshop price £8.99**

An introduction to birds and birdwatching, featuring 150 of the commoner bird species of Britain and Northern Europe.

Winging it – birding for low-flyers

By Andrew Fallan; Brambleby Books, 2011;

pbk, 146pp; ISBN 978-0-9553928-5-6;

Subbuteo code M20745

£9.99 **BB Bookshop price £8.99**

Andrew Fallan recounts his own experiences: the highs and the lows, the ticks and the dips, the trial and tribulations, of being (so he claims) a very ordinary, very mediocre birder in a world seemingly populated by experts and high-flyers.

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News and comment

Compiled by Adrian Pitches

Opinions expressed in this feature are not necessarily those of *British Birds*

Is the RSPB about to ditch the Avocet?

The RSPB appears to be broadening its remit beyond birds with the long-established Avocet *Recurvirostra avosetta* logo a likely casualty. No longer does the RSPB have the mission statement 'For birds, for people, forever'. Instead the RSPB simply styles itself 'Nature's Voice'.

Readers of the society's *Birds* magazine will have noticed the new direction, as 'Stepping up for nature' becomes the mantra, 'Dates with Nature' events have replaced 'Aren't Birds Brilliant!' and the current charity collection week (26th May to 3rd June) is not 'RSPB Week' but 'Love Nature Week'.

The logical conclusion to the new 'saving nature' strategy/rebranding exercise would seem to be a change in the name of the society magazine too. *Birds* is now surely too narrow a title for the million-member organisation that rightly prides itself on being Europe's largest wildlife conservation charity.

The new strategy, developed since Mike Clarke became RSPB chief executive two years ago, could be a classic for future students of branding. How does a well-established organisation with a recognised remit (it's more than a century since it was granted a Royal charter for protecting birds) change its direction, its logo and perhaps even its name – and still retain its brand recognition?

It's true that the RSPB and its Avocet do not have the profile of Marks and Spencer or the BBC but the Society is held in similar esteem to those other British institutions – and it's sufficiently well-

known that those four letters of its name do not require elaboration in the frequent media mentions that the Society and its work receive. So... is it wise for the RSPB to rebrand itself as, for example, Nature's Voice? Should its logo become an otter, frog or a butterfly (or all three)? And should its members' magazine become *Birds & Bees*?!

There are more serious questions. How do we reconnect young people with the natural world? How does nature conservation make its voice heard in a recessionary world obsessed with the instant gratification of celebrity and the internet? Is a simpler message more persuasive in this online age?

The RSPB is to be commended for grasping all these nettles and its repositioning does make sense. Nature and its protection have always been the job of the Society. The new strategy makes this explicit, that birds live in a wider world and the RSPB wants to conserve entire ecosystems and all their inhabitants. Indeed, there's no better showcase for the Society's work than the BBC *Springwatch* series, which is being broadcast for the second year running from the RSPB's Ynys-hir reserve in Ceredigion.

For more than 120 years the Society has protected birds and other wildlife. Now it's become Nature's Voice. It's a bold move – but are birds likely to lose a powerful single-issue champion? *News and comment* would be interested to know your views. Write, e-mail or continue the debate on Twitter by following @britishbirds

BTO Cuckoos are back in Norfolk

Lyster and Chris are back! Two of the five Common Cuckoos *Cuculus canorus* satellite-tagged by BTO researchers last spring in Norfolk have been tracked all the way to Africa and back again. It was an ambitious and costly exercise (each tag costs £3,000) but investigating where these Red-listed birds go in winter and whether (and where) they might be falling by the wayside has yielded priceless insights.

All five male Cuckoos trapped and tagged in spring 2011 were tracked via satellite to wintering grounds in the forests of the Congo basin. And they varied in their routes. Lyster's 16,000-km round trip took him south through France and Spain, before he skirted the western edge of the

Sahara and then worked his way down the West African coast to winter in the Congo. But on his return he headed in a straight line across the desert to Algeria then flew across the Mediterranean into France before returning to Norfolk. Incredibly, BTO staffers Phil Atkinson and Paul Stancliffe tracked him down to a Norfolk reedbed with a BBC TV crew and the video was broadcast on *BBC Breakfast*. It was no mean feat finding Lyster: on his first day back he had moved the length and breadth of the Norfolk Broads in a 50-km radius.

Paul Stancliffe described the moment when they found him, thus: 'In almost 40 years of birdwatching, it's probably one of the best birding experiences I have had, up there with finding a

white Gyr Falcon *Falco rusticolus* on Scilly, and seeing a male Siberian Rubythroat *Luscinia calliope* on Shetland.

Meanwhile, signals from Chris's transmitter showed that he had returned to Thetford Forest. His migratory map had a similar triangular shape but he chose different routes, heading to southeast France and then leap-frogging the Med before striking across the Sahara and eventually to Congo. On his return, he headed almost due north.

Sadly, Clement went missing in action after he had started his return journey from Africa. (He was the Cuckoo sponsored by the BTO and was trapped at the Trust's Nunnery Lakes reserve.) This is how it was reported by the BTO on his blog: 'We regret to announce the death of Clement, last heard from in Cameroon on 25th February. Temperature data transmitted at the time via satellite suggested that he was no longer alive and we must now assume that he will not be returning to Norfolk for the summer. It is amazingly fortunate that all five Cuckoos survived as long as they did. Interestingly, the only information we had about a ringed Cuckoo in Africa, prior to this winter, was of a bird of exactly the same age as Clement that was killed by man (presumably for the pot) in Lembe in Cameroon (just 100 miles

due north of Clement's last position) on 30th January 1930.'

Martin appears to have succumbed on the return journey too. He'd reached southern Spain but his body temperature data on 9th April indicated that he had died (it had dropped from 32° to 11°C). His routes south and north were another variation on those taken by the other birds.

And Kasper? Well, his tag last sent a signal from Algeria on 11th April but the BTO team has not given up hope that he'll make it back to Norfolk, as his tag may simply have lost all power.

You can read all the fascinating details of the birds' journeys at: www.bto.org/science/migration/tracking-studies/cuckoo-tracking

In 2012, the BTO hopes to expand its research to include Scottish, Welsh and female Cuckoos and has a target of ten more tagged birds this year. Cuckoos seem to be faring much better in Scotland than they are in England. Hopefully, the BTO team can find out why. You can donate to the Cuckoo project on the BTO website and help fund this ground-breaking research.

The British Birds Charitable Trust has sponsored a Cuckoo this year with a *BB* conservation grant. We'll keep you posted on the progress of 'BB'.

Phil Hollom at 100

Our warmest congratulations go to Phil Hollom, who will reach the age of 100 on 9th June. Phil's name will be familiar to surely every *BB* reader through his many books and publications, and his

involvement with this journal. He joined the editorial board of *British Birds* in March 1951, and served on it for more than 20 years. Having written *The Popular Handbook of British Birds* in

1952, he realised, from his extensive travels, that there was a need for a good European field guide; soon afterwards, he joined forces with Guy Mountfort and Roger Tory Peterson to create *A Field Guide to the Birds of Britain and Europe* (published in 1954). In 1959 he was the first Chairman of BBRC and in 1960 he succeeded Max Nicholson as senior editor of *BB*; Phil remained in that position until 1963 but remained part of the editorial board until 1972. In the mid 1970s, he was one of the team to initiate *Birds of the Western Palearctic*, and he remained



Keith Betton

193. Phil Hollom, June 2011.

involved with that handbook throughout its production.

Phil has lived at Hydestile, in Surrey, for almost 30 years and still manages to watch the birds in the immediate area – including his garden, which contains a nextbox that was famously used by Mandarin Ducks *Aix galericulata*, Stock Doves *Columba oenas* and Tawny Owls *Strix aluco* – in turn, in the same season! This remarkable sequence of events is behind the birthday painting, by Ian Wallace, which BB has commissioned for Phil (fig. 1). Keith Betton tells us that last year, shortly after his 99th birthday, Phil was delighted to witness the ringing of Red Kite *Milvus milvus* chicks at a nest in Hampshire, as can be seen from plate 193.



D. I. M. Wallace

Fig. 1. Breeding birds of Inwood Cottage, Hydestile.

Black Grouse translocated overnight to new lekking site

Gamebird researchers in northern England have translocated 15 male Black Grouse *Tetrao tetrix* from their stronghold in Teesdale, Co. Durham, to Nidderdale, in Yorkshire, in an innovative overnight 'raid'.

Black Grouse were present at the release area in the Yorkshire Dales until the 1990s. Since then, despite habitat improvements on the edges of grouse moors by farmers and landowners in the intervening years, research by the Game & Wildlife Conservation Trust has identified that a reluctance to move into new (or former) areas may be a limiting factor. Male Black Grouse are unwilling to disperse away from their place of birth to set up new territories and tend to stay within 1 km of where they were born. In contrast, young females will travel an average of 9 km into new habitats looking for places to settle and breed. This means that on the fringe of the range females are moving into areas where there are no males.

The local Black Grouse population has doubled in just two years in other parts of the species' range

in the North Pennines after two successive very good breeding seasons. This is an excellent result, particularly as numbers fell to fewer than 500 males in 2010 when the area witnessed the worst winter weather conditions for almost 30 years.

The 'black hole' for Black Grouse was the Yorkshire Dales and it is hoped that the translocation project will build up the population there. All the male birds are fitted with radio transmitters and located weekly to monitor movements, survival and lekking. This is the first year of a three-year project. Dr Phil Warren from the Game & Wildlife Conservation Trust said: 'Our spring lek surveys have been very encouraging, with the core population bouncing back following two good breeding years and this has provided a surplus of males for us to translocate to the new release area. The transported males have remained close to where they were released, we have observed them displaying and excitingly they have already attracted females, which is good news for this iconic species of the uplands.'

OSME summer meeting

The summer meeting of the Ornithological Society of the Middle East, the Caucasus and Central Asia (OSME) will be held on Saturday 7th July at BTO HQ in Thetford, Norfolk. Doors open at 10.00 am and non-members are welcome. The general theme is 'Migration through the OSME Region'. Speakers include Paul Stancliffe ('Tracking Migrants into Africa'), Helen Demopoulos

('Lebanon – an Important Bird Country'), Przemyslaw Busse, Krzysztof Stepniowski and Matt White ('Bird Survey and Ringing in the Western Desert, Egypt'), Ivaylo Angelov ('Egyptian Vulture Conservation Challenges'), and Nick Moran and Oscar Campbell ('Migration through Abu Dhabi'). Contact Ian Harrison at secretary@osme.org for further details.

Iraqi conservation work recognised with UK Government grant

Thanks to a £300,000 grant from Defra's Darwin Initiative, a major new three-year conservation programme is starting in Iraq. Focusing on the mountainous region of Kurdistan, the project will involve experts from the Royal Botanic Garden in Edinburgh, BirdLife International and Iraqi NGO Nature Iraq.

The team's aim is to make serious progress in addressing the challenges of conservation resulting from nearly 30 years of scientific isolation. 'The biodiversity of Iraq is extremely vulnerable following years of unstable government, breakdown in traditional land management and recent rapid development,' explained Tony Miller from the Royal Botanic Garden, and the UK project leader. 'What's more, the country has limited

capacity to deal with threats to the environment. At present the only internal organisation engaged in conservation work is Nature Iraq. Supported by BirdLife since 2005, it has adopted a Key Biodiversity Areas approach to identifying biodiverse-rich regions. The new funding will allow us to work with the two agencies towards conserving the country's fragile environment.'

UK Natural Environment Minister Richard Benyon said: 'Iraq has suffered many years of war and conflict, and protecting its wildlife has understandably been a low priority. Things are now changing, and with work already underway to tackle threats to the environment it is clear Iraq has stepped up its efforts to conserve its vulnerable wildlife.'

'The Darwin Initiative is all about helping the world's poorest countries protect their wildlife; the money and expertise provided by the UK will allow them to focus on this once more.'

Richard Porter of BirdLife commented: 'Working with Nature Iraq for the past seven years has been inspiring and a great privilege. Their extensive wildlife surveys have produced a wealth of information and now there is a great opportunity to use this for an exciting education programme.'

Welcoming news of the grant, Nadheer Abood of Nature Iraq concluded: 'In Iraq, conservation of species and habitats has languished far behind the rest of the world due to decades of war and civil unrest. Nature Iraq has been active in trying to change this situation since 2004 through conservation research and field studies. Now, in a partnership with the Royal Botanic Garden Edinburgh and BirdLife, we will work together to plan and implement specific conservation tools at a proposed protected area in northern Iraq. Once developed these tools will help us in our efforts to create and expand a protected area network within Iraq.'



194. Male White-throated Robin *Irania gutturalis*, Kurdistan, April 2009.



195. Sara Mountain, in Iraqi Kurdistan, January 2010.

The Malta crisis

Northumberland reader Graham Bell was moved to write to N&C after reading Jeremy Greenwood's review of Andre Raine's *A Photographic Guide to the Birds of Malta*. Graham was keen to stress the practical ways to help the situation in Malta where, as these pages have frequently described, illegal and indiscriminate hunting and trapping continues unabated on the island.

As Graham points out, 'BirdLife Malta does monitor the situation and has made significant inroads, but their brave efforts in the face of indifference, strong opposition, intimidation and even violence are hampered by limited resources. All this is shocking – but it is no use being shocked unless we also act. One obvious way is to donate to or join BirdLife Malta; tel. 00356 21347646, www.birdlifemalta.org

'Another, less direct but also hugely effective, way is to suggest to your local bird club or

wildlife group that they adopt BirdLife Malta as their charity for the year, as a sideline to the organisation's main programme of activities. Raffles, coffee mornings, open gardens, quizzes, bird races... can all raise money without digging into club funds. It raises awareness among members and fulfils the conservation aims which most such organisations have in their constitution.

'I know it works – my own group, the North Northumberland Bird Club, raised over £700 in one year by trying just a few of these sideline activities. If local groups did something similar countrywide, the moral and financial boost to BirdLife Malta would really make a difference at last.'

This year, 2012, is BirdLife Malta's 50th anniversary – an appropriate time for us all to give them the support they desperately need.

Hundreds of nests drowned in flood catastrophe

The floods in April and May have had a catastrophic impact on some of Britain's already-threatened wildlife, says the RSPB. Several of the Society's 211 nature reserves suffered severe flooding, including the internationally important Ouse Washes in East Anglia. Much of the reserve, which is home to the largest concentration of nesting waders in lowland England, was under two metres of water at times. The rising floodwaters drowned the nests and breeding attempts of an estimated 600 waders, including 37% of the lowland Common Snipe *Gallinago gallinago* population of England and Wales. Other waders affected included large numbers of Common Redshanks *Tringa totanus*, Northern Lapwings *Vanellus vanellus* and, most importantly of all, Black-tailed Godwits *Limosa limosa*.

Jon Reeves is the RSPB's Ouse Washes site manager. He said: 'Following centuries of land drainage across the UK, The Ouse Washes is now the most important stronghold for these birds, after they have been largely forced out of other sites. Literally, we have all our eggs in one basket and we've lost them. It's devastating to watch the nests succumb to the rising waters without being able to do anything to prevent it.'

The Ouse Washes is used by the Environment Agency as part of the flood relief system for the River Great Ouse, which flows from Northamptonshire, through Bedfordshire, Buckinghamshire and Cambridgeshire to the sea, near Kings Lynn, in

Norfolk. In summer, the Ouse Washes reserve is grazed by cattle to create the ideal conditions for ground-nesting birds. The RSPB manages the site to keep the water levels at an optimum height for waders to create damp grassland and wet features without flooding. However, the Environment Agency has to open sluices to allow water onto the washes to prevent flooding elsewhere in the 250-km catchment of the river. Jon Reeves added: 'The Environment Agency is working hard to identify replacement land for the birds to nest to take the pressure off the Ouse Washes. Until this replacement land is in place, the birds will continue to face an uncertain future.'

Other reserves to have suffered flooding include Minsmere, on the Suffolk coast, where Avocet and Black-headed Gull *Chroicocephalus ridibundus* nests have been washed away. Fairburn Ings in Yorkshire and Pulborough Brooks in Sussex have also been affected. Waterbird nests, including waders such as Lapwing, have been destroyed at both of these sites.

However, the nest belonging to a pair of Common Coots *Fulica atra* at Fairburn Ings enjoyed a miraculous escape, when the nest with eggs was washed away. The nest, like a miniature raft, floated to a new location about 30 m away, where the eggs were able to hatch. Some RSPB reserves are reporting better news as the heavy rainfall is helping to provide much-needed water to those sites striving to combat the ongoing drought.

Swift conference

The second 'International Common Swift Seminars' conference took place in Berlin on 10th–12th April, with 78 participants from 20 countries across Europe and beyond, including Turkey, Israel, Indonesia, Russia and China. The conference was co-ordinated by Ulrich Tigges, whose website (www.commonswift.org) provides probably the most extensive range of knowledge on the Common Swift *Apus apus*, and where summaries of the conference presentations will be posted in due course. The Common Swift nests in holes in walls and roofs, and there has been a significant and consistent decline in Common Swift populations in

countries across the species' Palearctic breeding range. The key message from the conference was that this is due primarily to the loss of nesting places as a result of modern building designs, materials and practices, and also government-led building insulation programmes. Initiatives to work with builders and developers to try and preserve and create nesting spaces for the birds are underway in many countries, but there is a general fear that the current state of remedial activity is too limited, and that time is running out for the Common Swift. (Contributed by Edward Mayer, Swift Conservation: www.swift-conservation.org)

Prothonotary Warbler – new for the Western Palearctic – or not?

Silas Olofson, a co-author of last month's paper on Iceland Gulls in *BB*, sent us the photo opposite and a fascinating story which raises issues of how to deal with the oceanic boundaries of recording areas. In late April, Silas received an e-mail from Esbern Christiansen. Esbern had photographed an unfamiliar bird while working on the Faroese trawler *Enniberg*, in June or July 2010. The trawler was located about 250 nautical miles (463 km) southwest of Iceland – less than 100 km from Icelandic waters according to current convention – and the bird stayed onboard the trawler for about 24 hours. And the bird was... a stunning Prothonotary Warbler *Protonotaria citrea*. One of those birds to dream about finding on Scilly, in a



Esbern Christiansen

196. Prothonotary Warbler *Protonotaria citrea*, off Iceland, summer 2010.

Cornish valley or on a remote Scottish island. Hopefully this extraordinary record will not slip through the net...

More on the diet of urban Peregrine Falcons

Readers who enjoyed the paper by Ed Drewitt and Nick Dixon on the diet of urban-dwelling Peregrines *Falco peregrinus* in *BB* in 2008 (see *Brit. Birds* 101: 58–67) might be interested to know that an updated version of their findings at one particular site, St Michael's Church in Exeter, has just been published in *Devon Birds*, the journal of Devon Birdwatching and Preservation Society; see www.devonbirds.org

**For extended versions of
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Announcement

New county bird recorders

Hertfordshire Ken Smith (temporary recorder); e-mail birdrecorder@hnhs.org

Sussex David Howey; e-mail recorder@sos.org.uk

Recent reports

Compiled by Barry Nightingale and Harry Hussey

This summary of unchecked reports covers early April to early May 2012.

Headlines During a period rich in top-class rarities, a Black-winged Pratincole in Cheshire & Wirral, a European Roller in Devon, Calandra Lark and Crested Lark in Kent, and a Bufflehead in Lincolnshire were at the top of the list (all of them trumped for a time by a putative Atlas Flycatcher *Ficedula speculigera* in Yorkshire – until DNA results suggested otherwise). Other notable events included a Little Bittern in Pembrokeshire, a Squacco Heron in Avon, four Pallid Harriers and a widespread influx of at least 14 Black-winged Stilts, while spring 'Sibes' included Siberian Stonechat, Citrine Wagtail and Olive-backed Pipit.

Ross's Goose *Anser rossii* Forres (Moray & Nairn), 24th–28th April. Cackling Goose *Branta hutchinsii* Islay (Argyll), long-stayer to 16th April; North Uist (Outer Hebrides), 15th–21st April; Chew Valley Lake (Avon), 21st April. Red-breasted Goose *Branta ruficollis* Loaningfoot/Southernness Point areas (Dumfries & Galloway), long-stayer to 1st May; Brora (Highland), 24th–28th April.

American Wigeon *Anas americana* Long-stayer, Portmore Lough RSPB (Co. Antrim) to 11th April.

Falcated Duck *Anas falcata* Long-stayer, Cross Lough, Belmullet (Co. Mayo), to 11th April. Blue-winged Teal *Anas discors* Long-stayers at South Gilmourton, to 16th April, presumably same Auchenreoch (both Clyde), 6th–8th May, and Walmsley Sanctuary (Cornwall), to 4rd May; Ham Wall RSPB (Somerset), 12th and 18th April; Loch Leven (Perth & Kinross), 22nd–23rd April.

Ferruginous Duck *Aythya nyroca* Langford Lakes (Wiltshire), 11th–15th April. Lesser Scaup *Aythya affinis* Cosmeston Lakes, long-stayer to 23rd April, same Cardiff Bay Wetlands (both East Glamorgan), 24th–28th April. King Eider *Somateria spectabilis* Ythan Estuary (North-east Scotland), long-stayer to 8th May; The Wash, off Leverton (Lincolnshire), 21st April; South Uist (Outer Hebrides), 1st May. Surf Scoter *Melanitta perspicillata* Long-stayers at Garretstown (Co. Cork), to 22nd April, Ruddon's Point (Fife), 16th and 26th April and Rerwick Head (Orkney), 19th–21st April; Portmahomack (Highland), 18th–21st April; Blackdog (North-east Scotland), 29th April; Ferny Ness (Lothian), 8th May. Bufflehead *Bucephala albeola* Covenham Resr (Lincolnshire), 27th April.

White-billed Diver *Gavia adamsii* Poolewe (Highland), 11th–13th April; Burghead/Hopeman Point (Moray & Nairn), 12th–18th April, up to two 19th April to 3rd May, one to 8th May; Portsoy (North-east Scotland), 15th–29th April; Mellon Udrigle (Highland), 16th April; Lewis (Outer Hebrides), two, 23rd April; Papa Westray, 27th April, South Ronaldsay, 29th April and 3rd May, and North Ronaldsay (all Orkney), two, 30th April, one 6th May; Kirkabister (Shetland), 28th April.

Little Bittern *Ixobrychus minutus* Teifi Marshes (Pembrokeshire), 19th–20th April. Night Heron *Nycticorax nycticorax* Polgigga (Cornwall), long-stayer, 15th April. Squacco Heron *Ardeola ralloides*



197. Female Bufflehead *Bucephala albeola*, Covenham Resr, Lincolnshire, April 2012.

Roy Harvey

Recent reports

Chew Valley Lake, 2nd–5th and 7th May, presumably same Blagdon Lake (Avon), 6th–8th May. **Cattle Egret** *Bubulcus ibis* Long-stayers Walmsley Sanctuary, to 2nd May, Chigborough Lakes (Essex), to 15th April and Lydney Lakes (Gloucestershire), intermittently to 3rd May; Lytchett Bay (Dorset), 10th–13th April; Bannow Bay (Co. Wexford), two, 10th–16th April, one to 20th; Burnham Overy, then Snettisham (both Norfolk), 25th April; Pevensey Levels (Sussex), 28th April; Theale GP (Berkshire), 30th April; Lodmoor (Dorset), 1st May; Chew Valley Lake, 2nd May; Earls Barton GP (Northamptonshire), 2nd–4th May; Stanpit Marsh/Christchurch Harbour (Dorset), 5th–6th May. **Great White Egret** *Ardea alba* Records from Berkshire, Cambridgeshire, Cheshire & Wirral, Cornwall, Cumbria, Essex, Greater London, Greater Manchester, Highland, Lancashire & N Merseyside, Northamptonshire, Somerset, Suffolk and Sussex. **Purple Heron** *Ardea purpurea*

Bunmahon (Co. Waterford), 17th–18th April; Broom GP (Bedfordshire), 2nd May; Holkham (Norfolk), 4th–5th May; Tacumshin (Co. Wexford), 4th–5th May; Burnham Overy, 6th May. **White Stork** *Ciconia ciconia* Abberley (Worcestershire), nine, 17th April, then six Holywell (Flintshire), 22nd, same Colwyn Bay (Denbighshire), and Llandudno (Caernarfonshire), 23rd, near Didcot, 26th then Standlake Common (both Oxfordshire), 28th April to 1st May (when one was killed in collision with an overhead wire), remaining five Church Norton, then Sidlesham Ferry and Pagham Harbour (all Sussex), 2nd May, Fontwell (also Sussex), 3rd, Havant (Hampshire), 4th, Portland, 5th and Morden Bog (both Dorset), 6th May. Also two in Kent, Hampshire, Lincolnshire and in Norfolk, and singles Cheshire & Wirral, Dorset, Isle of Wight, Somerset, Surrey and Sussex. **Glossy Ibis** *Plegadis falcinellus* Long-stayers in Caernarfonshire, Cleveland, Co. Cork (three), Dorset, Co. Galway,

Lancashire & N Merseyside, Outer Hebrides, and Pembrokeshire (up to four). Other records from Anglesey, Ayrshire, Cumbria (three), Derbyshire, Devon, Essex, Hampshire, Montgomeryshire, Norfolk, North-east Scotland (same three as Cumbria), Scilly, Shropshire, Sussex (two) and Co. Wexford (four).

Black Kite *Milvus migrans* Denbury (Devon), 13th April; Spittal, 18th April, same Letterston (both Pembrokeshire), 30th April to 1st May; St Ives, 28th April and Lizard (both Cornwall), 1st May; Galley Head (Co. Cork), 1st May; Llanon (Ceredigion), 2nd May; Blashford Lakes, 5th May and Hatchett Moor (both Hampshire), 8th May. **Pallid Harrier** *Circus macrourus* Belvide Resr (Staffordshire), 14th April; several localities between Blakeney Point and Warham Greens (all Norfolk), 5th and 7th May; Spurn (Yorkshire), 6th May; Gibraltar Point and Theddlethorpe St Helen (both Lincolnshire), 8th May.

Black-winged Stilt *Himantopus himantopus* Long-stayer at Tacumshin to 10th April, then



Graeme Willets

198. Black Kite *Milvus migrans*, The Lizard, Cornwall, May 2012.

an influx involving at least 14 individuals; Chew Valley Lake, 10th April, same Radipole Lake, 11th April then Abbotsbury (both Dorset), 12th–17th April; Standlake Common, 12th April, same Rutland Water (Leicestershire & Rutland), 13th, then Willow Tree Fen, 14th–18th, and Frampton Marsh (both Lincolnshire), 19th April to 1st May, with two there 5th, one to 7th May; Clayhanger Marsh (West Midlands), two, 19th April, same Leighton Moss, 20th April; Exminster Marshes, three, 25th–27th April, again 5th May, with two of same Wrafton (both

Devon), 28th April to 1st May; Walmsley Sanctuary, 28th April to 4th May; Isle of May, 1st–3rd May; Christchurch (Dorset), 2nd May; Paxton Pits (Cambridgeshire), 3rd–6th May; Elmley Marshes (Kent), four, 5th–6th May, two to 7th; Minsmere RSPB (Suffolk), two, 7th May. Black-winged Pratincole *Glareola nardmanni* Burton Mere Wetlands (Cheshire & Wirral), 3rd–4th May. Kentish Plover *Charadrius alexandrinus* Ynyslas (Ceredigion), 20th April; Ferrybridge (Dorset), 2nd–3rd May; Pegwell Bay (Kent), 2nd May; Rye Harbour (Sussex), 3rd–6th May; Hickling Broad (Norfolk), 4th May. American Golden Plover *Pluvialis dominica* Tacumshin, 20th April and 6th–7th May; Reenroe (Co. Kerry), 28th April to 1st May. Long-billed Dowitcher *Limnodramus scolopaceus* Long-stayers Kidwelly Quay (Carmarthenshire), to 20th April, Mere Heath, two, to 2nd May, also at Shapwick Heath (both Somerset), 25th April, Bannow Bay to at least 4th May, and the Cull (Co. Wexford), two, to 15th April, one to 21st; Belfast (Co.



Joe Cockram

199. First-summer male Pallid Harrier *Circus macrourus*, Blakeney Point, Norfolk, May 2012.

Antrim), 19th April; Lough Beg (Co. Derry), 3rd May; Great Livermere Lake (Suffolk), 4th–6th May. Spotted Sandpiper *Actitis macularia* Chew Valley Lake, long-stayer to 21st April. Greater Yellowlegs *Tringa melanoleuca* Loch of Strathbeg, long-stayer to 5th May. Red-necked Phalarope *Phalaropus lobatus* Llynheilyn (Radnorshire), 1st–2nd May; Slimbridge (Gloucestershire), 3rd May.

Laughing Gull *Larus atricilla* Severn Beach (Gloucestershire), 1st May. Thayer's Gull *Larus*



Roy Harvey

200. Black-winged Stilt *Himantopus himantopus*, Frampton Marsh, Lincolnshire, April 2012.

Recent reports

(*glaucoides*) *thayeri* Elsham (Lincolnshire), long-stayer to 18th April. Bonaparte's Gull *Chroicocephalus philadelphia* Long-stayer, Larne (Co. Antrim), to at least 11th April. Whiskered Tern *Chlidonias hybrida* Long Eaton (Derbyshire), 25th April.

Alpine Swift *Apus melba* Kilcoole (Co. Wicklow), 24th April; Lowestoft (Suffolk), 28th–29th April; Canvey (Essex), 29th April; Brixham (Devon), 30th April. European Roller *Coracias garrulus* Little Haldon (Devon), 1st May. Woodchat Shrike *Lanius senator* Cape Cornwall (Cornwall), 30th April to 3rd May; Bryher, 2nd May and St Mary's (both Scilly), 8th May. House Crow *Corvus splendens* Cobh (Co. Cork), long-stayer throughout. Calandra Lark *Melanocorypha calandra* Sandwich Bay (Kent), 5th May. Short-toed Lark *Calandrella brachydactyla* Bryher, 2nd May, probably same St Mary's, 2nd–4th May; Rhosneigr (Anglesey), 2nd–3rd May. Crested Lark *Galerida cristata* Dungeness (Kent), 7th May. Red-rumped Swallow *Cecropis daurica* After one in Yorkshire on 21st April, at least another two in April (in Cleveland and Lincolnshire). Between 1st and 7th May further records from Caernarfonshire, Cambridgeshire, Co. Cork, Cornwall (one or two), Derbyshire, Devon (two), Gwent, Kent (up to two), Norfolk, Oxfordshire, Scilly (up to four) and Yorkshire (one or two).

Hume's Warbler *Phylloscopus humei* Wyke Regis

(Dorset), long-stayer to 26th April. Iberian Chiffchaff *Phylloscopus ibericus* Castor Hanglands (Cambridgeshire), 21st–30th April; Coombe Hill Meadows NR (Gloucestershire), 30th April to 2nd May. Savi's Warbler *Locustella luscinioides* Steart (Somerset), 21st April; Rutland Water, 4th–8th May. Melodious Warbler *Hippolais polyglotta* Dungeness, 1st May. Rose-coloured Starling *Pastor roseus* Hordle (Hampshire), long-stayer to 16th April; Selsey Bill (Sussex), 6th May. Siberian Stonechat *Saxicola maurus* Holy Island (Northumberland), 28th April; Cromer (Norfolk), 30th April.

Citrine Wagtail *Motacilla citreola* West Runton, 30th April; Holme (both Norfolk), 4th May; Ballycotton (Co. Cork), 5th May. Olive-backed Pipit *Anthus hodgsoni* Filey (Yorkshire), 30th April. Red-throated Pipit *Anthus cervinus* New Passage/Northwick Warth (Gloucestershire), 22nd April; Lizard (Cornwall), 8th May.

Arctic Redpoll *Carduelis hornemanni* Dog's Bay, Roundstone (Co. Galway), 13th April. Little Bunting *Emberiza pusilla* South Milton Ley (Devon), long-stayer to 17th April; Landguard (Suffolk), 24th April; Sandwich Bay, 30th April and 4th–5th May.

Northern Waterthrush *Parkesia noveboracensis* St Mary's – after a stay of 214 days, no reports after 16th April.



Nic Hallam

201. Red-rumped Swallow *Cecropis daurica*, Farmoor Resr, Oxfordshire, May 2012.



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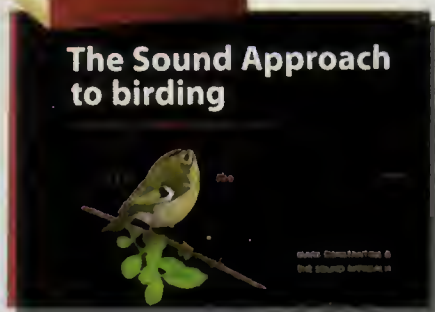
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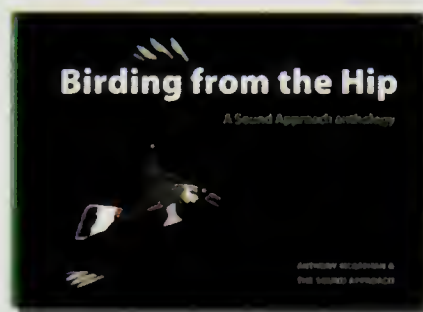
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Bolivia – Lowlands
10 days – £1,895

Borneo – Sabah
10 days – £2,495

Botswana
10 days – £2,295

Brazil
10 days – £1,995

Colombia
12 days – £2,995

Cuba
12 days – £2,395

Amazonian Ecuador
11 days – £2,295

Ecuador – Antpittas
10 days – £1,995

Ecuador – Chocó
12 days – £2,195

Ecuador – Cock-of-the-rock
9 days – from £1,695

Ecuador – South-east
13 days – £2,495

Ecuador – South-west
12 days – £2,395

Ecuador – Tumbes
9 days – £1,995

Ethiopia
10 days – £1,795

Ethiopian Endemics
10 days – £1,795

Gambia
12 days – £1,795

Ghana – Picathartes
9 days – £2,095

Honduras
10 days – £2,295

India
A wide range of tours
9 days – from £1,495

Kazakhstan
9 days – £1,895

Kenya
10 days – £1,995

Nepal
A wide range of tours
9 days – from £1,695

Panama – Canopy Tower
9 days – from £2,095

South Africa – Kruger
10 days – £2,295

Sri Lanka
10 days – £1,895



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The Nikon logo is positioned in the top right corner, featuring the brand name in a bold, black, sans-serif typeface. It is set against a yellow square background that has a subtle pattern of diagonal lines.A large, detailed image of an osprey in flight dominates the upper left portion of the advertisement. The bird is shown from a side profile, with its wings spread wide, revealing the underside of its wings and its tail. It is flying against a clear, deep blue sky. The lighting highlights the texture of its feathers.

Honed by nature

Form follows function. The guiding light of the new Nikon Prostaff 5 fieldscopes. The design recalls images in nature, such as birds in flight. You'll enjoy hours of communing with nature. The hardy instrument's newly developed multilayer-coated eyepiece lens minimises colour aberration, down to the edge of the field of view. And it's 20% lighter than similar spotting scopes. Long eye relief adds to viewing comfort. Digiscoping? Easy with three types of eyepieces and your choice of Nikon Coolpix cameras. Prostaff 5: technology and art in your hands.

PROSTAFF
5

A black and silver Nikon Prostaff 5 82-A spotting scope is shown at an angle. It has a long, cylindrical body with a silver-colored eyepiece and objective lens housing. The main body is black.

PROSTAFF 5 82-A

A black and silver Nikon Prostaff 5 60-A spotting scope is shown at an angle. It is similar in design to the 82-A model but smaller. It features a silver-colored eyepiece and objective lens housing on a black body.

PROSTAFF 5 60-A

Nikon Sport Optics